FEDERAL ENVIRONMENTAL ASSESSMENT BOARD

Sitting in the Town Hall, Newcastle,
Ontario on OCT 5 1977

VOLUME 5

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FEDERAL ENVIRONMENTAL ASSESSMENT BOARD

BEFORE:

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Sitting in the Town Hall
Newcastle, Ontario, on
Wednesday, October 5, 1977

APPEARANCES:

MR. C. GRANT	Counsel for Eldorado Nuclear
MR. D. FROST	Representative for Eldorado Nuclear
MR. G. COLBOURNE	Representative for Eldorado Nuclear

VOLUME 5

INTERVENORS:

DR. M. FOSTER	MP For Algoma
MR. R. JAMES	A Citizen
MR. I. HORNBY	Energy Probe
MR. D. WELSH	Durham Region Federation of Agriculture
MR. G. WAREHAM	United Steelworkers of America
MR. B. PARSONS	Atomic Energy Control Board
MR. J. HOWIESON	Department of Energy, Mines and Resources
MRS. B. THORPE	Province of Ontario
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MR. GARFIELD PAYNE	A Citizen
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MR. DOUGLAS HUMPHREY	A Citizen
MRS. Q. FLETCHER	A Citizen
MR. PAUL MILLER	Citizen of Bewdley
MR. DOUGLAS SAUNDERS	Representing The Greenpeace Foundation.
MISS JOAN HAYES	A Citizen
MISS ELIZABETH T. LEVENTHAL	A Citizen

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Per: C. Denman

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MR. GARFIELD PAYNE	A Citizen
MISS MARIE MORGAN	A Citizen
MRS. BARBARA MUNCHMEYER MR. JACOB MUNCHMEYER	Citizens
MR. DOUGLAS MUNCHMEYER	A Citizen
MRS. G. PETROVICS	A Citizen
MR. PAUL MILLER	Citizen of Bewdley
MR. DOUGLAS SAUNDERS	Representing the Government Commission.
MISS JONI BAYER	A Citizen
MISS ELIZABETH C. LAWRENCE	A Citizen

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--- Upon commencing at 1:30 p.m.

THE CHAIRMAN: Good afternoon, ladies and gentlemen.

--- The Chairman's opening remarks.

THE CHAIRMAN: I think we are ready for our first speaker, Mr. Foster.

SUBMISSION BY MR. FOSTER:

Thank you very much, Mr. Chairman. Members of the Panel and ladies and gentlemen, my name is Maurice Foster. I am the Member of Parliament for Algoma and I represent the uranium producing area of this province, Elliot Lake. First of all, Mr. Chairman, I want to express my appreciation to you and Mr. Timmermans for arranging for me to speak first this afternoon. I must say, as my wife and I drove down last night and we saw the beautiful sunshine, we thought we might stay forever, because it seems to be about the only area in the province in which the sun was shining in the past month. But our hopes were dashed today into the hearings because the rain seems to be just about as heavy here as anyplace else.

So, I want to make a presentation this afternoon on my own behalf and really on behalf of the Algoma district.

It is my understanding that proposal

before this Enfironmental Assessment Panel consists of two parts:

(1) the establishment of a nuclear waste disposal site to accommodate the nuclear wastes from the existing Port Granby dump and those which exist in Port Hope, and

(2) a uranium refinery to process the mineral ore produced in the Province of Ontario.

At the outset, I want to make it clear that I do not oppose the establishment of the nuclear waste disposal facility which would remedy an existing unsatisfactory situation at Port Granby. I feel that Eldorado Nuclear must be allowed to carry out the necessary remedial work to make this a safe, secure dump site, both now and in the future.

At the same time, I want to register my opposition to the location of a new uranium refinery at Newtonville to process uranium ore from the Province of Ontario, most of which is mined in Elliot Lake in the Algoma District.

I believe that, since the mines are located in Northern Ontario, the extractive industry of this type and the jobs created by it should be located as well in Northern Ontario. For too long, it has been the pattern of industry in Canada to place the plant for the milling of ores at the mine

site but the refining and extractive processes in the South. It is wrong to locate a uranium refinery of this kind on Metropolitan Toronto's doorstep, when Northern Ontario is crying out for secondary industry to process its natural resources.

This refinery should be located in the North Shore area of Lake Huron in the Algoma District, where the jobs are needed most and where there has been a strong indication of public support for its location. Attached to this brief are letters and Resolutions of support for the locating of this refinery in the North, from the following groups:

Appendix A

1) North Shore Improvement District
2) Elliot Lake Town Council
3) Bline River Town Council
4) Town of Espanola
5) Village of Iron Bridge
6) Township of Laird
7) Town of Bruce Mines
8) Township of Thessalon
9) City of Sault Ste. Marie
10) Blind River Chamber of Commerce
11) Thessalon Chamber of Commerce
12) Blind River Industrial Committee

13) Editorial Article in Sault Daily Star.

14) Letter from the Honourable John Rhodes, Ontario Minister of Housing.

This support for the location of the refinery in the North Shore area is based on the need for more jobs in that area. In 1969, the principal employer in the area, McFadden Lumber Mill of Blind River, closed down and over 400 people were thrown out of work. A few years later, the Pater Mine in the North Shore area closed, removing several hundred more jobs.

During the past several years, an average of over $12 million has been paid out in U.I.C. benefits to the Algoma constituency. This very winter, the Federal Government will spend $1.8 million in the riding for direct employment projects under the Canada Works Program. The attached document (Appendix B) prepared by the Department of Manpower, shows the unemployment rate in Algoma at 18.9 per cent and still Eldorado, a Crown Corporation with some public responsibility is determined to build a refinery in Southern Ontario for the processing of Algoma uranium ore.

I believe that much of Eldorado's motivation to locate the refinery in the South is for the convenience of the management who live in

Port Hope and do not want to have to move to Northern Ontario. Although most of the cost projections for the refinery do foresee a higher cost for a Northern Ontario location, surely there are other considerations than simply the dollars and cents to consider.

In the Environmental Impact Assessment for the Port Granby Project, two locations which were studied in detail in the Algoma District were never even mentioned. One was the Blind River Industrial Site Study, which was a detailed study of locating the plant in the 2,000 acre B-ind River Industrial Park and was paid for by Eldorado Nuclear.

Another was the study carried out by the Department of Regional Economic Expansion for a site near Spragge, Ontario. The Spragge site indicated an additional cost for the refinery of some $6.4 million over the Port Granby site (Appendix C). When this figure is compared with the amounts paid out in U.I.C. benefits annually, and the amounts spent annually in make-work programs, it seems a small price to pay. The refinery would create several hundred jobs for several years during the construction phase and at least 150 permanent jobs for this economically depressed area.

The Eldorado report on the North

Shore site also suggest that there would be additional operating costs in locating the plant in Northern Ontario of $1.1 million per year. This works out to an extra cost of 5¢ - 6¢ per pound for the processing of a product that sells for approximately $42 per pound.

The Department of Regional Economic Expansion has estimated that if this were a private industry project it would be eligible for about $5.2 million in incentive grants to locate in Northern Ontario, related to employment created and capital invested.

Likewise, a private industry project of this type in the Province of Ontario with a producing mine generating profits would realize tax concessions of $4 million in Southern Ontario and $6 million in Northern Ontario over the life of the plant.

The people of Northern Ontario are conscious of the profits the government has realized from the uranium mining industry, and will realize in the years to come, because of the rapidly escalating price and the tremendous reserves that are located in Elliot Lake. For instance, if the government were to sell the stockpile of uranium which it holds - most of it from Elliot Lake -

it would realize a profit of over $400 million. The federal government presently holds some 7,200 tons of uranium in stockpile which cost about $150 million (including interest charges) and which, with uranium at $40 per pound, is now worth nearly $575 million. Surely simply justice would indicate that some of these profits be returned to Northern Ontario in the form of jobs for our young people, many of whom have to go to Southern Ontario to find work.

The Panel should also consider the advisability of locating this plant in Southern Ontario, thereby taking out of production for agricultural purposes up to 1,500 acres of land. Plants of this type tend to attract similar types of plants, so it is not only the initial facility that removes productive agricultural land from use, but additional plants which are located there later. The sites being considered for this refinery in the North Shore area of Lake Huron would not take valuable agricultural land out of production.

The federal government is carrying out a study right now on the establishment of an Interdisciplinary Research Centre and Public Information Project to be located in Elliot Lake. The purpose of this centre would be to carry out research into the problems of occupational and

environmental health, especially those associated with the mining and production of uranium. Such a centre would give new impetus to the detailed kind of research which is required to protect the mining environment and, as well, the environmental safety of the communities involved in the production of uranium.

The federal government is prepared to commit $500,000 per year to this research centre and is asking the Ontario government and the five underground uranium mining companies to do the same, one of which is Eldorado.

A refinery located in the North would be at a considerable advantage with these extensive research facilities in the immedieate vicinity.

I believe that this refinery should be located in the North Shore area because of the continuing concern with nuclear waste disposal. The wastes from this new refinery should be returned to the ground from which the ore came. This would be the best waste disposal system possible. If this cannot be achieved initially, it should be stored where the tailings from mines are stored and thus avoid the creation of new nuclear waste disposal dumps.

An Environmental Assessment Study for Northern Waste Disposal is being carried out by

Eldorado Nuclear now at a cost of $25,000. I believe that this Study will show that the most feasible way to deal with the nuclear waste from the refinery is to locate the refinery adjacent to the mining area so that the waste from the refinery can be disposed of in the same facilities. The attached letter gives the details of the study being carried out by Beak Consultants Limited (APPENDIX D). In view of the significance of this Study, I believe that this panel should adjourn its hearings until the results of the Study are know. At that time, the comparison of the North Shore sites and the Port Granby site can be made on a fair and equal basis.

Eldorado's main concern is to make profits and locate this refinery in as convenient a location as possible for its management. We will never build a decent country, with equality of opportunity for all regions, or protection of the environment, if we allow them to go ahead with the construction of the refinery on this basis.

I hope that your distinguished panel will take a larger view of what is best for our country, and give consideration to the regional implications of the location of this refinery.

Mr. Chairman, I would ask therefore that your panel not complete its work until it has the

final report on the Environmental Assessment for Northern Waste Disposal and has had a chance to really compare the sites in the North and the South. I believe that, if you do this in a fair and objective way and consider all the fators involved, you will favour a Northern site for the location of Eldorado's new uranium refinery.

THE CHAIRMAN: Thank you, Mr. Foster. Are there any questions from the public at this time? As we mentioned, we thought we would try to reverse the order. We usually ask the Panel to speak first. Are there any questions from the panel?

MR. LANG: Perhaps the Eldorado people could tell us something about the Beck Study and when it will be completed.

MR. GRANT: It is only in the preliminary stages and we have no idea when it would be finished. I would suggest perhaps a year's study. It is a study on the alternate methods undertaken in the contingency plan. It doesn't only include disposal in northern sites. It looks at the alternate methods of disposal.

MR. LANG: What proportion of that information do you anticipate being used in this plant would come from the Elliot Lake area?

MR. GRANT: Well, we have based the

design and capacity for the new plant primarily on the anticipated Ontario production.

MR. LANG: Would that only come from there?

MR. GRANT: Preferably.

MR. LANG: Dr. Foster, did you note any objection to a northern location from, let's say, community groups?

MR. FOSTER: No, all the representations I have received from organized groups has been in support of the refinery. Of course, Ontario Hydro are considering the establishment of a nuclear reactor in the area west of Blind River at Dean Lake. I guess there are really three sites. They have had a very positive response. I don't recall the figures, but something in the 90 or 95 per cent range in the western location.

There is another location close to the Little Current one which is called Cloche Island, and there is considerable opposition to it, to a nuclear generating plant.

MR. LANG: The publicity that went with this, that went out I guess did not specify a site for the refinery, but just as a refinery in general somewhere along Lake Huron?

MR. FOSTER: Well, you know, I was

rather impressed in reading the consultant's report to see that they had specified Thessalon, Dean Lake, and Spanish, I believe was the other one, because, you know, in our discussions with Eldorado, these were early discarded sites, because they just weren't either economically or environmentally suitable. You know, I find it difficult when I read that Environmental Impact Statement to find that they didn't give any details about the Blind River site which they spent $25,000 or perhaps $50,000 on in total. Then the other one is the Spragge site which the Department of Regional Economic Expansion spent a lot of money on. I have copies of those with me of those sites which they had gone into in detail and developed costs and estimates and documents from the cabinet on these cost estimates, but you know, they glossed right over. They are not even mentioned.

MR. LANG: I understand your concern. I didn't express my question very well. I was really referring to the fact that you can expect opposition to developing something when you pinpoint where it's going to go and so far the people for it are in favour of it somewhere up there. Is that correct?

MR. FOSTER: Well, generally in the present, I would say all of the public discussions would be say in the Blind River - Spragge area.

Really, no other sites have been really sort of identified, because mostly, you know, the Blind River was the first study and it showed 13 to 20 million dollar cost over Millhaven which was the current favourite at that time. But that was considered too high a price. So then the Spragge study went on and I would say that most people in Algoma who have been following the issue would have Spragge identified as the most favourable site.

MR. SHIKAZE: Dr. Foster, you mentioned in your brief that a suitable solution for the waste is to integrate it with the mine waste. Do you know what the reaction of the mines are to such a proposal?

MR. FOSTER: I broached this subject with some mining people and I haven't gone into a lot of detail, but I didn't find a very violent reaction opposing it. It is such a small amount. Like, I think the impact study says 2,000 tons a year and that worked out, I think to something like 4 tons a week. Whereas, you know, if you take a ton of rock, we get one or two pounds of uranium out of it and the other 1900 and some -- I don't know whether they are long tons or short tons, but the 1998 pounds or whatever the long ton amount is, we are talking about such a miniscule amount. I think the Rio Algome

people talked in terms of 20,000 tons a day of waste disposal by 1985. You know, we are talking about 2,000 tons in a year. It is a very miniscule amount.

I don't know how you would work the question of storing your waste with the mine waste. People in the Atomic Energy Control Board tell me that the radioactivity level is just about the same and there should be no problems there. I think it is a case of if you are handling logs, you take your logs to the sawmill and you get your lumber sawed and you take your sawdust back home. I think if it was operated on that basis, then the refinery would refine the yellowcake and the uranium hexachloride, they would sell the hexachloride and the miniscule amount of waste could be taken back and stored with the rest of the mine waste.

MR. CHENG: Dr. Foster, I presume you had gone through the EIS document to some extent.

MR. FOSTER: Yes.

MR. CHENG: The three volumes?

MR. FOSTER: Yes.

MR. CHENG: One of the main concerns is the waste disposal. In your opinion, how

does the Port Granby site compare to the Blind River site or Spragge site in that respect, with respect to waste disposal?

MR. FOSTER: Well, the study is being carried out now by Beck Consultants. As far as locating a waste disposal site on the property, I don't think anybody has gone into that detail. They just haven't gone into that detail and, for instance, in the Spragge site, it is not probably a very suitable location on that site for waste disposal. I suspect that the other site might and the Blind River Industrial Park, 2,000 acres, probably would be.

In my view when you have got mining companies turning out, you know, hundreds of thousands of tons a day of waste of a certain level of radioactivity, and other chemicals, it doesn't make sense to establish a new waste disposal site. It seems to me that the wisest thing to do is to take those wastes from the refineries and return them to the mine sites where they are disposing of many multiples of the same proven radioactive material.

DR. BIRD: Dr. Foster, you have referred to the studies carried out by the Department of Regional Economic Expansion.

MR. FOSTER: Yes.

DR. BIRD: Particularly in the Spragge

area?

MR. FOSTER: Yes.

DR. BIRD: I am not quite clear from your reference there and Appendix C whether the Appendix C material was material developed for Eldorado by its consultants or whether it, in fact, is a product of one done by DREE on its own. That is my first question. The NEC doesn't identify the source. It just lists the data.

MR. FOSTER: Yes, the Department of Regional Economic Expansion prepared a cost estimate and a study. It is here. Then, Eldorado did an analysis on those costs and wedded them to the site costs for Millhaven and Port Granby.

DR. BIRD: The DREE study then was a cost to build a uranium refinery or to build any industrial complex?

MR. FOSTER: No, it was the cost of locating a refinery and the feasibility of locating a refinery in the Spragge area. You see, there are some pretty obvious advantages in Spragge over say, Blind River, in terms of costs, because of the water available at the Blind River site. I've forgotten the figure, but it seems to me the intake and outfall from the plant was something like $6 million because the water is so shallow. There

is a rail spur at the Spragge site. There is power readily available and there was some quite obvious advantages.

DR. BIRD: I think perhaps at the proper time it would be interesting to hear Eldorado's response to this discussion, because I am not quite sure still with the data you provided us with in Appendix C, is data which comes out of their work on DREE's stuff.

MR. FOSTER: It comes out of both.

DR. BIRD: It is your assemblage of material from two different sources?

MR. FOSTER: No, it is an assemblage of their estimates on Millhaven, Port Granby and the assemblage of the Spragge costs by DREE.

DR. BIRD: I hope Eldorado will tell us their views on the usefulness of that comparison when it comes for them to speak.

MR. FOSTER: When you look at Appendix C this is based on, you know, management of residue. They are assuming there that you would take the waste disposal, the waste from the Port Granby site and ship it some place. So the figure $6.4 million, that is the base figure, and then they say, if you are going to -- well, then they added another figure of $6 million. They are assuming that you would

have to take the waste from Port Granby and ship it to some place else.

DR. BIRD: You mean existing waste, they would relocate that?

MR. FOSTER: Yes, the 200,000 tons at Port Granby.

DR. DEROW: Would it be possible for you to leave with us copies of these reports or obtain them for us?

MR. FOSTER: I am sure the clerk of your committee or the secretary of the committee could get them. They are available. I would be glad to lend you mine.

DR. DEROW: Is it possible, because I think we are running behind, for you to somehow write a letter about the timing of the consideration of various sites, the timing of different reports, different things that were considered? But not now.

MR. FOSTER: If I could just read that into the record, the report by the Department of Regional Economic Expansion is entitled The Valuation of a Potential Site For a Uranium Refinery Near Spragge, Ontario. It was prepared for the Department of Regional Economic Expansion in August of 1976 and was prepared by James F. MacLaren Consulting Engineers. The Blind River Industrial Site

project was prepared on March 23rd, 1976 and it is prepared for Eldorado Nuclear Limited at Port Hope. It is a study of the feasibility of locating a uranium refinery at the Blind River Industrial Site. I think most of the material in it was prepared by MacLaren as well.

MR. GRANT: Dr. Bird asked you some questions, Mr. Foster, about Appendix C. I wasn't quite clear on what your answer was. My information is that that appendix was part of a report that was put to the Treasury Board by Eldorado in Ottawa and not a calculation made by DREE or anybody else.

Were you saying it was prepared by DREE or do you not know who prepared it.

MR. FOSTER: As I understand it, it was a report prepared for the government based on the study by DREE of their cost factors for a Spragge location, but it had to be wedded to the cost factors which had been calculated by Eldorado for the other three sites in comparison.

MR. GRANT: I have seen this very table in the report which went to the Treasury Board.

MR. FOSTER: Yes.

MR. GRANT: Are you saying that DREE did their own calculations and verified these figures or did they just accept the Eldorado figures?

MR. FOSTER: It is my understanding that those figures were prepared by Eldorado.

MR. GRANT: All right. Now, I have a few more questions and some are of a factual nature rather than clarification, but before getting to those, I would like to have clarified for me your view with respect to the question of the degree of contamination which is permissible from a residue or waste disposal area.

Are you saying that a higher degree of contamination is permissible in the north than would be permissible in Port Granby? Is that what you are saying?

MR. FOSTER: No.

MR. GRANT: Would you expect that the standards to be applied should be the same in both areas?

MR. FOSTER: Yes.

MR. GRANT: Now, have you considered yourself, and I know you are a doctor of veterinary medicine and not a scientist, but have you considered the consequences of disposing of radioactive material in an old mine as to what happen or can happen to that material if an underwater path comes along?

MR. FOSTER: Yes. As I indicated in my other comments, the most feasible way to dispose

of the waste is with whatever arrangement is ultimately worked out in Elliot Lake with the tailings. Personally, I would like to see that done in an underground way eventually, but that may not be possible for some time, because as you have indicated, you can't put atomic waste back in the mine, if there is a danger of it getting into the water resources.

MR. GRANT: Well, I thought you said in the paper that the disposition of the tailings pile would be of a temporary nature and bear in mind when we talk about temporary, we mean something less than several thousands of years. Now, as I understand your paper, you are suggesting that this position on the tailings pile would be of a temporary nature pending the possible disposition of them in an old mine. Is that correct?

MR. FOSTER: No. I am saying that I have been advised that they are relatively the same radioactivity as the tailings and I think ideally it would be desirable to have your tailings deposited underground, because I think there are obvious advantages in that. But we haven't been able to do that. So, if at some time in the future, we are able to work out the details of having the tailings disposed of underground, then we would have the waste from the refinery disposed of with those

tailings underground.

If it is found that it has to be on the surface, the waste disposal, then that is where the refinery waste will be disposed of.

MR. GRANT: Is there any credible scientific evidence today, to your knowledge, which advocates the disposition of the tailings, including the residue, in a mine as being a safe presently known method of disposing of that waste?

MR. FOSTER: I think that is what the Beck Study is all about, to see the possibility of that.

MR. GRANT: Until such time a conclusion is arrived at or demonstrated to be credible, then the storage of the residue on the waste tailing pile would have been of a temporary nature. Is that correct?

MR. FOSTER: No, I say they are the same, roughly the same level of radiation, so that they could be disposed of with the tailings. If our method of disposing of tailings is on the surface, than that is where their waste from the refinery will be disposed of. If at some time in the future you are able to avoid these tremendous tailing beds by using whatever method it is of putting it back in the mine, then that would be desirable from my point

of view.

MR. GRANT: There is some desire, as I interpret the matter, being voiced here to arrive at a permanent storage for the waste. What I am trying to ascertain is do you consider the disposal of the tailings on the tailings pile to be a permanent disposal solution?

MR. FOSTER: Yes, if that is the best method that can be devised. There are Ontario Environmental Board studies going on now in Elliot Lake as to the expense and how they will dispose of the waste. If it is possible to do it underground, then I think that is highly desirable. If it is not possible, then it would have to be an on-surface method that is used.

MR. GRANT: You think the addition of the revenue to the tailings pile will not add additional contaminants to the area, will not increase the level?

MR. FOSTER: I have made enquiries which have indicated that the waste is of a similar nature to the wastes from the milling operation. Certainly if that is the case, if this refinery were being built by Rio Algom, and it would be just a case of the yellowcake going to the refinery, and if there are equivalent levels, they would probably

be stored together, the waste from the refinery and the waste from the mill operation.

MR. GRANT: Wouldn't that depend on whether it made economic ---

THE CHAIRMAN: We had agreed to discuss waste disposal in our second phase. Dr. Foster indicated his position in the same sense that we have had other ideas for disposal and perhaps the technical people ---

MR. GRANT: I don't wish to delay the hearing, Mr. Chairman, but if Dr. Foster proposes to be back to these hearings, I would be glad to defer the questions I have until that time. I wouldn't like some of the matters to go undealt with because I consider them to be of an important nature.

THE CHAIRMAN: What I am concerned about is he seems to be saying the same thing four times.

MR. GRANT: I want to know if it was his idea of the permanent disposal of waste and I think his answer is it is permanent until we can find a different one.

You indicated no mention was made in the material published in the study, of the Blind River and Spragge areas. I guess you must have overlooked the abstract or overview which was

published in connection with the EIS, because it did refer to those two sites in that overview on page 3 or 4. You weren't suggesting there was any intent not to disclose the existence of those studies?

MR. FOSTER: Well, the document that I read, this one here, this is an appendix, and it shows a map -- the Province of Ontario, and it shows a whole list of sites. It goes into quite a bit of detail as to how the site was worked out in Thessalon and Dean Lake and Spanish and discards them. It says some place in there, you know, we didn't do a lot of detail on this. It is just kind of an overview and I just find -- well, there is a map in here showing all this and I find it hard to know why wasn't there one for Blind River and say it cost us $25,000 or $50,000. There was a study on Spragge. I find it difficult to understand why those two sites weren't mentioned in the document.

MR. GRANT: Have you seen this part of the document? It looks like so (indicating). Is that in your copy?

MR. FOSTER: No, it isn't. Well, I don't have the same book I guess.

THE CHAIRMAN: That is in the last part of the brief. Dr. Foster is talking about Appendix 1.

MR. GRANT: Have you read the whole Environmental Impact Statement?

MR. FOSTER: I have read most of it and parts of it.

MR. GRANT: On page 3 of this document, which is a summary or abstract of the total Environmental Impact Statement, it refers to:

"In the spring of 1976, the Company agreed to re-examine the area bordering the North Channel of Lake Huron, following an offer of land in the Blind River Industrial Park. The study concluded that this site was not suited for a refinery, and would involve costly engineering solutions to overcome shallow water conditions. Capital and operating costs were estimated to be appreciably higher than would be the case for the Port Granby site. In addition, a further North Channel site at Spragge was identified as having access to deeper water, and a study was funded by the Department of Regional Economic Expansion to examine it in detail. The results confirmed the Company's

"preliminary findings that the site was less attractive than the others, from environmental and economic standpoints."

You mentioned particularly the Blind River site as involving some additional costs. Would it be surprising to know that the various experts estimated those additional capital costs at Blind River to be between $13 million and $19 million?

MR. FOSTER: No, it wouldn't, but I am always a little suspicious that those experts might live in Port Hope.

MR. GRANT: One might almost say the same thing about building somewhere else. I can appreciate your endeavour to have it brought to the Algoma District, but what I am questioning is simply your objective recitation of fact.

MR. FOSTER: Well, perhaps you might explain to me why you have those two sites spelled out when you have done more investigation on those two sites than you had on Thessalon, Dean Lake and Spanish.

MR. GRANT: You know very well that those sites were studied under some suggestion, which you had some part in, and the studying of those sites was done considerably later than the studies

done on the other sites.

MR. FOSTER: This document says that it was revised and in January of L977 -- gee, you didn't go a very good job of revising. The federal government spent approximately 40 or 50 or a thousand dollars on these reports and you didn't even bother mentioning them.

MR. GRANT: But the document you are reading from is Appendix 1. This was the first elimination process. The document you should be reading from, sir, is the final EIS, which I just read to you. It does refer to those two studies.

THE CHAIRMAN: Gentlemen, I think we have had Mr. Foster here for almost an hour and perhaps he made his point and perhaps Eldorado has made theirs.

MR. GRANT: I still have some questions.

THE CHAIRMAN: You have some more questions?

MR. GRANT: Yes, I do.

I don't understand Dr. Foster's reference to employment statistics appearing in Appendix B. The copy I have of Appendix B says:

"Constituency of Algoma, 1977-1978, Canada Work Program (page 2) allocation

"$1,812,000."

Then there is some data indicating labour surplus, but it doesn't indicate whether that is estimated 1977 or 1978 labour surplus, nor does it indicate whether that is actual labour surplus at the time.

The reason for my concern is that we had a gentleman here from the local area saying there was considerable labour unemployment in this area and my information is that that isn't the fact today in your area. Could you explain Appendix B to me?

MR. FOSTER: As I understand your question it is whether the actual statistics or the estimated statistics are used. My comment to that, Mr. Chairman, is that is the basis on which the federal government is basing its winter works program and they believe enough in it to spend $1.8 million of the taxpayers' money of Canada to allocate to the Algoma riding.

MR. GRANT: Do you know anything about the comparable statistics for this area?

MR. FOSTER: I am not familiar with the statistics for this area. Perhaps you could enlighten us on that.

MR. GRANT: I don't know. This

obviously is a government document. Would there be comparable statistics for this area?

MR. FOSTER: Yes, every constituency would have a print-out similar to that in order to operate the Canada Works Program.

MR. GRANT: In order to put this in the proper perspective, would you be able to provide for the panel and myself a copy of such comparable statistics?

MR. FOSTER: I probably could.

THE CHAIRMAN: I think the panel could probably ---

MR. FOSTER: I think it is the responsibility of the panel itself.

THE CHAIRMAN: Agreed.

MR. FOSTER: If you are supporting the local Port Granby site, you might be interested enough to gather the information yourself.

MR. GRANT: Well, that's true and we have, in fact, gathered it, but our endeavour is not just to show one side of the story. We have looked at 17 sites. It is a question, in my judgment, that this gentleman presents for your consideration clearly an opposition to my client's proposal certain statistical information and unless the panel asks him to obtain that information that

I would like to have, if that information is available, it is the only way I can determine the relevance of that statistical information.

THE CHAIRMAN: It is agreed that we will attempt to get the information and provide it to you and anyone else who is interested.

MR. GRANT: But has Dr. Foster said he would find it our should I go and get it myself?

THE CHAIRMAN: Both, but I volunteered that we would get it. I volunteered the secretary.

MR. GRANT: Is this information available to the public?

MR. FOSTER: I think it is, yes.

MR. GRANT: On page 5 of your material you refer to the fact that if Eldorado were not a government corporation certain of these tax concessions and assistance programs would be available. Is there any suggestion that Eldorado could do anything, being a public corporation, to make those things available to them? I don't understand the relevance of what somebody else can do?

MR. FOSTER: Well, what I am saying -- perhaps I didn't say it well enough. You can't go putting in a refinery in Algoma. It is too costly for the taxpayers of Canada and the facts are that you know if it was Rio Algom building the

refinery, they would be getting tax concessions which you are not eligible for as a Crown Corporation. But if you look at the bigger scene, you are going to see that those tax dollars, whether it is just a supplementary estimate to finance Eldorado to locate the refinery in Northern Ontario where it should be, or whether it is reduced revenues to the Ontario government, and to the federal government because of tax concessions to a private corporation, it's all the same amount of money coming out of the taxpayers' pockets of this country. Maybe that is too complicated.

MR. GRANT: I still lose the relevance.

MR. FOSTER: I see the panel nodding. I think they understood.

MR. GRANT: I always thought they were smarter than I was. With respect to this Beck Report, my information is that that report is designed to consider in a preliminary way alternatives to the disposition of residues, not only from the proposed refinery, but from other sources as well. Is that true to your knowledge?

MR. FOSTER: It probably is. I was mainly interested in the study from the point of view that it would provide, you know, the feasibility of

the disposal of the waste from the refinery either with the waste from the uranium milling operation.

MR. GRANT: Thank you.

THE CHAIRMAN: Mr. Duncan said he would take one minute only.

MR. DUNCAN: Just following on that last question, Mr. Foster, very simply, would you consider after having put forward a scheme for waste disposal for a refinery, would you consider it feasible to have the waste management facility up there and no refinery?

MR. FOSTER: I'm sorry, I missed that.

MR. DUNCAN: Would you consider handling the waste up in Algoma Region and not having the refinery up there, because you have actually put forward a waste management scheme which you feel is acceptable for a refinery. Would you be satisfied if the refinery was not there and accept the waste?

MR. FOSTER: I would think that the idea of having a waste management facility without the refinery would be unacceptable.

MR. DUNCAN: I didn't hear that. Acceptable or unacceptable?

MR. FOSTER: Are you saying would the idea of having a waste management facility without

the refinery be acceptable? You know, my opinion is it would be unacceptable.

MR. DUNCAN: I see.

THE CHAIRMAN: In view of the time, unless you have a very important question, I would like to beg your indulgence and pass onto the next speaker. We have kept Dr. Foster here for an hour and we have to have supper before the other speakers. Thank you, Mr. Foster. Let me move to Mr. Richard James. Dr. Foster, will you be available after the coffee break to answer questions from individuals, within the next hour or so? I got the impression there were some people who wanted to talk to you.

MR. FOSTER: I would really like to be able to leave in the next half hour. I wouldn't mind talking to someone privately. Do you mean questions from the panel? With just private individuals, I would be happy.

THE CHAIRMAN: Later, just outside or something like that.

MR. FOSTER: Thank you very much, Mr. Chairman. I didn't plan to take an hour of your time. I thought we could have it done in 15 minutes, but I appreciate your hearing my comments, thank you.

MR. RICHARD JAMES: Mr. Chairman, I think I can do this in 15 minutes. I want to read this

My name is Richard James. I have been a member of the Toronto Real Estate Board since 1931 and a broker since 1945 so I have been entirely on my own.

THE CHAIRMAN: Would you like to sit down and use the microphone? It would make it easier for the rest of us to hear you.

SUBMISSION BY MR. RICHARD JAMES:

Ladies and Gentlemen;

When I read in the paper a group of people wanting to speak here, withdrew because they had been refused a half million dollar grant, for legal and other expenses, I decided to drive 70 miles from where we live 35 miles north of Peterborough, partly because the request for so much money is typical of what I want to speak about. Almost everyone thinks the government should go on printing money as if we will never ever have to balance the books. However, with Hydro planning to spend five and a half to six million dollars, some would ask, "why not spend $500,000. trying to present good reasons for opposing this plan?" I hope that just because this Hearing is held by a Conservation Authority, I will not be told some of my points are irrelevant.

Many people say they would rather cut down their standard of living by getting along with less electricity than having this prime agriculture land taken over for another nuclear plant. I agree with that thinking. Others are asking for almost anything that will give employment; many who lived with the "30's" know things can get much worse than they are now. I will try to show employment could be greatly increased in other ways than by

what is now under consideration here. There are other ways of getting our electricity, ways approved of by conservationists. And two other aspects I want to discuss are inflation and the vulnerability of our present grid system.

Hydro employees think of many ways to increase our consumption of electricity, such as heating houses that way. We should be thinking of many ways to reduce our dependency on and use of electricity, and that is why I'm here. We are told some buildings are illuminated up to 10 times as much as is necessary, and that some illnesses are caused by excessive lighting. We have been told for years that heating houses and other buildings by electricity is far more of a dtrain on our natural resources that heating by gas or oil or wood. That is largely because of the great loss of power in long transmission lines. Energy Probe, an off-shoot of Pollution Probe, has been telling us less than one-third of the power generated by a nuclear plant is "used" at the end of the wire. We have been told Trent University uses about as much electricity as the City of Peterborough. Even if that is an exaggeration, architects should keep in mind that sort of result. The Art Gallery of Ontario is said to be using as much electricity per month as

it used a few years ago in a whole year. The governments are examples of blatant extravagance with electricity. There are many ways of reducing the waste of electricity.

Building another nuclear plant will employ those with very sophisticated skills; I suggest that is partly why the idea is promoted. A great many more people with average skills would be intelligently employed building and making tens of thousands of wind pumps and solar heating units for small or individual use. Just imagine the employment resulting from spending in that way, only 10% of the pronounced cost of this Newcastle nuclear plant. Imagine spending over the next 5 to 10 years, half a billion dollars on sun and wind units that could make thousands of rural places independant of the power now sold by Hydro. New recreation areas could spring up regardless of where Hydro is unavailable.

How many of you know that 25 and 30 years ago many farms in the Prairies had their own wind mills and storage batteries? These were abandoned when electricity seemed so easy to produce, but I think we should go back to that method. Right now we can buy solar equipment for domestic water in many houses and cottages. We should be combining the use of wind and sun to reduce or eliminate the need

of long power lines into rural areas, cottage areas, and villages. The Australians are trying to market their wind pumps which they say operate on a 5 to 6 mile an hour wind; we are told wind mills formerly used here needed a 12 to 15 mile an hour wind. Considering each property should have its own solar and its own wind unit, the work involved in rural areas would take up a great deal of slack in employment, and make many independent of Hydro's great vulnerable grid system. Unemployment is not limited to our Maritimes, or to Canada. In Germany, the leading European industrial nation, there are a million unemployed. Nothing but war eliminates unemployment; unemployment sometimes produces wor. In Holland they use wind mills to pump the water back into the sea, day and night at no cost except for installation and maintenance. Those same costs should be our costs if we insist on sensible alternate sources of power. The initial cost would be financed with 80 to 90% loans on a 20 year basis. Like buying a house. Farmers and others could have storage batteries to power their cars and trucks; the batteries being kept "up" with wind power. Great savings in gasoline costs.

People ask which is our main problem: inflation or unemployment. There are dozens of reasons why we should stop inflation,

and various ways of trying to stop it. Borrowing 5 to 6 billion dollars for the Newcastle nuclear plant will tend to increase inflation. Do you remember reading last April or May that the drop in the Canadian dollar, in relation to the USA dollar, had already in 1977 cost Hydro $222 million? How many of you read that here in Ontario our Provincial debt costs about 3 million dolars a day in interest? The cost is well over a billion dollars a year in interest and still people deman more and more public spending on silly make-work programs that produce next to nothing and give many young people the impression that they can get easy jobs with good pay. How many of you read that financing our Ottawa debt will cost us one billion dollars more in 1977 than it cost last year, 1976? And judging by demands from the Maritimes we can expect that situation to become worse, with no real advantages such as would be the case if great efforts were made to use the sun and wind rather than depleting our non-renewable resources and our finances without improving our long term situation. I spare you the details of how hundreds of millions were poured into Maritime Can, into Clairtone which had been successful in Ontario, into a fly-by-night fancy car manufacturing project, and into the Heavy Water project at Glace Bay where they went on strike almost

as soon as the steel was put in the salty water, where if rumour is correct, it became useless. The latest fiasco was in the Linner Plant in Newfoundland, and already we hear demands for alternate work there. I don't blame all these failures on labour; smart financing was lucrative for some, expensive for us tax payers. Why try to industrialize the Maritimes when here in Oshawa, our pride and joy, where adverse weather is not a tough factor, we turn out cars that cost from $400 to $1,200. more than in the USA. Extra taxes are a factor, but they don't make all the difference. When business was booming we should have been trying to reduce our debt but the banks and governments encouraged borrowing for the red convertible and for fly-now-pay-later holidays, and they still do. Either we curtail our flagrant extravagences and work to get our finances under our control, or foreign nations will force us to do so, or will force the next generation to cope with as much tougher problem then the one we have now. In other we will forfeit some of our sovereignty by being too far in debt to foreigners. Some say the amount of our debt is not excessive when compared to our gross national product. Considering about 43% of our GNP is government spending, I disagree.

My final point is that we have come to depend too much on electricity. The black-outs are not an indication of a need for more nuclear

plants as much as they are a warning that we must change the method of generating and distributing our electricity. The grid system is wonderful as long as everything goes nicely. An electrical strom or accident has plunged vast areas into blackness. The papers and redios have told us of the difficulties. Who is telling us how to avoid a repetition? We have been told of food loss when refrigerators and freezers fail; and of broken pipes when the oil burning furnace fails. We have been told of the long line-ups when the store cash register fails. Just think of our inability to get money if the new equipment in banks won't work for a few days, or for a few weeks, in case of sabotage. Those with wind and solar equipment would be pretty smug along with those who have made arrangements to burn wood for heating. I refer to ways we have been accustomed to until very recently.

There wasn't much publicity a year or two ago when a small screw driver was accidently dropped into a vital part of the Pickering nuclear plant, but from what I was told part of the plant was shut down for several months and the loss was several millions. How many are aware of the fact one of the first things done when war was declared in 1939 was to have the Welland Canal guarded by the army?

Just think of how vulnerable we would be now, with nuclear plants and the grid system available for some small group wanting to do far more than just grab a few hostages on an aircraft. I suggest we should not be so complacent, not so reliant on the very things that have helped bring this country to the brink of bankruptcy. In many countries people are trying far harder than anyone here today, to stop the building of more nuclear plants.

My summation is that we should be employing people in more sensible ways such as building sun and wind generating systems, not only for ourselves but for export; we are told we have about a five billion dollar adverse manufacturing balance. We should be borrowing not for nuclear plants but for equipment that would conserve our natural resources, and give us a more dependable, more sensible way of life. May I tell you how someone else sums up our present plight? Dr. Ursula Franklin, a member of the Science Council of Canada, and chairman of that organization's Conserver Society, and our next door neighbour in Toronto, has said: "All our experience is in gearing a society up; we have no experience at all in gearing one down." But let's all have a try. Thank you.

THE CHAIRMAN: Thank you, Mr. James. Are there any questions for Mr. James? Could you stay there? I see one question from the audience.

BOB FISHLOCK: My name is Bob Fishlock and I am a student at Trent University. On a point of order as to having the public participate at the beginning, I find that kind of -- not in this case, but certainly it was quite a mass of information put forward and hard for the average person to get his thoughts together. I did have some questions after I heard both parties last time, so I would suggest we have it at the end like in the other cases.

Also, to this thing we just heard, I wonder, sir, one of the arguments is always put forth, I have heard people talking about a society where conservation would be a prime component of that, that people in our society are not prepared to have the government regulate them and the loss of freedom that goes along with that. Would you agree with that? Do you think you would be prepared to have a form of stricter conservation in our country so we could be more free on the social side from those like Ontario Hydro and other utilities?

MR. JAMES: I would be pleased to

help arrange a stricter type of regulation to live under. Not so that we're told when to get up and when to go to bed, but I would like to see the speed limits enforced on our highways and I would love to see people told that they can't go on strike. I would love to see people more easily fired when they don't do their proper job that they are paid for. Sure, I was in the militia for nine years in the 30's when there was no money for anyone at all. I was in the RCAF for five years. I am for opportunities to assert ourselves, to have certain rights, but I don't want them taken away by people who want to assert their rights which are very, very different to the 99 per cent of the population. I started off here by saying people, lots and lots of people will be glad to do with less electricity and be more certain what electricity there was and to be able to depend on a more certain planned type of life where you can plan to do things.

MR. FISHLOCK: I would too.

THE CHAIRMAN: Any other questions? Thank you Mr. James.

I think it was indicated earlier that the Durham Regional Agriculture Federation may have a time problem and with the indulgence of Energy Probe --

MR. IAN HORNBY: I have a meeting at

the other side.

THE CHAIRMAN: Well, yours was the first problem that came to our attention, so we will continue then with Mr. Ian Hornby of Energy Probe.

SUBMISSION BY IAN HORNBY:

Mr. Chairman, Members of the Panel,

I would first like to thank you for allowing Energy Probe, and more specifically, myself, Ian Hornby, Coordinator of Nuclear Research, to appear before this Environmental Assessment Panel concerned with the proposed Port Granby Refinery.

I would also at this time like to thank Eldorado Nuclear Limited for their obvious concern with public participation. The literature that Eldorado has made freely and widely available should serve as an example to other agencies who are considering building such potentially environmentally damaging projects. The people have a right to know about the project and the depth and quantity of information that has been made available is exemplary.

Observations such as these tend to allay many of the concerns expressed about the Environmental Assessment and Review Process when it was announced in September of 1974. Critics back then were concerned that because EARP was not enacted, because it was a secret ministerial directive, it would be applied -- and not applied more often -- at the discretion of the Minister of Environment Canada. I think people were worried that the government would duck out, like the Ontario

Government has just don, any time a crown corporation or agency proposed an environmentally controversial project. Clearly, because we are all here today, to consider such a project, this is not the case.

The government was also criticized because it had not taken the advice of their own task force on Impact Assessment, which, in August 1972 recommended, among other things, that EARP should be enacted and the assessment panel should be separate from any government department. It seems that usch criticisms are unfounded.

Yet why did the government not provide for an assessment act? Why did they not set up an independent panel as recommended by the task force? Probably because they wanted to be able to control environmental assessments; because they didn't want the assessment process to get out of hand. The government's heart is really not in EARP.

In mid-1975, the Executive Secretary of Canadian Arctic Resources Committee, Kit Vincent, wrote a stinging attack of EARP. His article was entitled "The Citizen as an Obstacle to Efficiency". Many of the points he raised were motivated by the concern for a then yet untried assessment process, yet others are just as relevant today. I quote one paragraph from this article.

"As pressure mounted for open decision-making the government, instead of meeting these demands honestly, engaged in a hat-doffing exercise. Though never stated formally, the policy ran as follows: a distinction was made between first and second-order questions. First-order policy questions, such as whether a project should or should not proceed, were to remain within the inner circle. But hearings and participation were allowed on second-order questions dealing with amelioration. This device goes under the name of 'consultation' and is better described as 'government informs people of pre-existing plans and suggests ways in which they can adapt to them'.

If we look at the government's original description of EARP, we note that during the initial assessment stage, the proponent of the project was required to consider "alternative solutions". More than two years ago I wrote a note to myself beside this point asking "to what extent does this hold true?" That is, what kind of 'alternative

solutions' must be considered?

The answer is now obvious and is contained in a small booklet called A Guide to the Federal EAR Process. Those words "alternative solutions" have, some three years since they were first written, been substituted with "alternate ways of accomplishing the project".

It looks like Kit Vincent was right. We are not here to assess alternate means of supplying foreign energy demand and creating domestic employment: we are here to suggest to you how the plant can best be built. Well, we are not going to do that. We are not going to assess how the plant and dump site can least affect the environment. We do not believe that plant should be built as it is a cog in a very dangerous wheel. If we were to tell you how best to build this plant, we would in effect be endorsing the project. This we obviously cannot do.

The absurdity of the present EAR Process can be demonstrated by Eldorado's summary impact report, which on Page 9 states, "the refining of uranium and the management of wastes from the process involve amounts of radioactivity that are relatively small, compared with some of the other activities in the nuclear fuel cycle." Here Eldorado has effectively divorced itself from the rest

of the fuel cycle, as each component has always tried to do. But this is not just, for there would not be the need for nuclear plants if there were no refineries. There would be no routine emissions of radioactivity from nuclear power stations, no highly radioactive wastes, no potentially fissionable material, if there were no refineries.

Can Eldorado Nuclear Limited guarantee, beyond all reasonable doubt, that uranium hexaflouride to be produced at this proposed plant will not be used in a reactor which has a major loss of containment sometime in the future? That the uranium will not be stolen en route to the recipient country and that the uranium will not eventually end up in some country's bomb? Eldorado has made no such claims, undoubtedly because it is not required of them. That is the fault of EARP, which, in addition to not allowing adequate assessments of alternatives, does not requre the proponent to assess anything but the impact to the immediate surroundings.

In addition to the rectification of the two problems just discussed, we -- and here I am not only speaking for Energy Probe -- we require some means to allow effective participation of public interest goups in assessment hearings. I don't believe you have that at present. Without some level

of public funding, groups such as Energy Probe are unable to dovote the time and resources required to participate effectively.

Eldorado Nuclear Limited, by some accounts, has spent over one million dollars to make their case for starting up the refinery. How can we compete with the sort of expertise that that kind of money represents? We simply cannot. We believe that it is a disgrace that SEAP, the lead public interest group in the hearings, has not been given a penny from federal sources -- or from the proponent.

A genuine commitment to public participation by governments means that they must pay more than lip service to the concept. It is of no use of set up assessment hearings unless adequate steps are then taken to encourage public participation Without the right to question the need for a project, and without support necessary to make assessment of the available information meaningful, public participation will become one more meaningless catchword of the 1970's.

We will not tell you into whose back-yard and with what colour of walls the plant should be built. We want to be able to assess alternatives -- the real alternatives -- to Eldorado's plans, and we believe that the impact of the plan, in relation

to the rest of the fuel cycle, must be taken into account. However, without public funding, we won't do your homework for you.

THE CHAIRMAN: Thank you, Mr. Hornby. I guess we will switch around here and ask if there are any comments from the panel.

MR. DUNCAN: Your final statement, Mr. Hornby, if I were to pursue that, you mean that you wouldn't do the homework for someone else unless you were funded for it. You would be interested in doing the detailed assessment if you were funded?

MR. HORNBY: It is not a matter that we don't want to do it, it is the matter at the moment that Energy Probe is subsisting on 70 per cent of salary. We are over-committed in terms of the work we have to do and without allocating more resources, which means more people, we simply can't do it.

MR. DUNCAN: I thought you may have left that impression with your last statement. Thank you for that clarification.

DR. DEROW: I would like to say I don't know if you have been here during the duration of the hearings, because we have had some participation. I want to clarify that point and I wonder if you would make available article 4 for us.

Page 730 to follow.

MR. HORNBY: I never used the words public participation. I used the words effective public participation. My concern is the environmental assessment review process has been set up for, well, 1974 and 1977, as an arm's length view of assessing a Crown agency or government project. Going by the Task Force and intergovernmental departments or a subdepartment or subsection of Environment Canada cannot count truly as being arm's length, not in terms of public law in those senses.

So, you really have to bring in outside consultants and that has not happened.

THE CHAIRMAN: The person that asked you the question is an outside consultant and also a member of the panel.

CARL ROSE: You said you wanted to look at a bigger picture and presumably one of the parts of that bigger picture -- well, I understand that Energy Probe has done some study on the relationship between employment opportunities and nuclear development as opposed to employment opportunities in some other form of energy development. Could you give a statement on that?

MR. HORNBY: I can't quote the exact figures on that. I don't actually believe it was Energy Probe that conducted that study. Andy

McKillop who is doing work in Ottawa, did a study showing how a job would be created in a consumer society, a non-nuclear consumers' society, and it was found that such a society would produce more jobs than a nuclear society.

The main problem at the moment is that the quality of jobs is slightly different in that an awful lot of them, for instance, are semi, unskilled, or semi-skilled installation installers or solar reflector installers as opposed to the semi-skilled and highly skilled type of labour in nuclear power plants. So, we are now looking at the quality of the employment.

CARL ROSE: But on the other hand, most of the people who are employed tend to be unskilled and semi-skilled, so in the consumers' society, that would give more jobs to the people who don't presently have them.

MR. HORNBY: You have to balance that against the quality of the job and how many people want to grow up to be installers as opposed to people to want to grow up and work in a nuclear power plant, because it represents prestige, the big shiny equipment. We should not condemn all unemployed people. I realize that is where the unemployment is at the moment. Perhaps the federal

in its programs will help that situation.

DR. DEROW: I am sorry to take up so much of your time. You say you don't want to endorse the building of this refinery. You realize this is a waste mangement facility there. Has your concern looked into how to best manage the present nuclear waste that we have and do you have some opinions on that?

MR. HORNBY: That waste management facility will not be handling waste -- yes, it will be managing some waste -- I thought for a moment you were implying it was going to take the waste -- all right. As I said, we have a copy of the complete environmental assessment of Eldorado and we do not have the time to read it. I have only read the summary and will not claim to have read any more.

MR. GRANT: Mr. Hornby, I would like to ask you a question concerning your satisfaction with this EARP process. You may or may not realize it, but the federal Ministry of Fisheries and the Environment have presented to this panel a technical review in considerable detail of the Environmental Impact Statement.

The Department of Health and Welfare have made a similar analysis. The Ministry of the Environment of Ontario has made a similar

analysis of it and Mines, Energy and Resources has also made a study. My question, really, is whether or not you and your organization realize that kind of technical expertise is being presented to this panel and are satisfied to have this panel or a panel like it arbitrate or make a decision which it is about to make. Are you suggesting you should create some entirely different structure?

MR. HORNBY: I am sorry to have to refer to some other nuclear information. I would like to answer your question, first of all with a quote from the immediate past president of the Science Council of Canada:

> "All of the actors involved in the technical development, those promoting it, those regulating it, and those affected by it should have some voice in the decision-making surrounding development. This innovation has become more necessary as governments have come more regularly to be seen as additional corporate actors in the promotion of some projects, rather than acting solely as protectors of the public good."

MR. GRANT: Is that your group's opinion?

MR. HORNBY: Most definitely.

MR. GRANT: Do you think that the panel satisfies these broad requirements?

MR. HORNBY: I do not believe this panel can be called -- as having introduced an arm's length assessment. The other thing I would question is, first of all, how much money have they spent collectively. You have to take them separately, because there is a lot of duplication, first in how much Eldorado has spent and the others. Seeing that that information probably is not available here, I bet if you stack up page for page your assessment versus all the assessments of the assessments, you will not find that it is thick. There are many cases where it is only through extensive cross-examination that information will come out. It requires an awful lot of independent thinking. It requires an awful lot of time.

Now, I have not read any of the other assessments, but just the fact that there is no what I would call outside arm's length group or organization that is directing an independent assessment of the assessment makes me wonder as to the value of the whole program.

MR. GRANT: Are you suggesting that the various experts in the various departments which

I listed are not likely to act and provide their opinions in an objective manner? Is that what you are saying? Because that, after all, is really only what is material.

MR. HORNBY: Okay. We all know that in court if we want to prove someone insane, in defence will bring out three psychologists or psychiatrists to say he is and the trial lawyer brings out three more and says the person is not. Each can find experts that will say their case. Now, there has been tremendous numbers of studies done and one that I am most familiar with is the Brookins Institute study of two years ago which warns of the problems of having government regulated industry. Now, this is in effect what we are talking about. This may be a panel, but it is still, in effect, a quasi judiciary body that is regulated by the industry. The way that works is not always kosher and that has nothing to do with money under the table or anything else. It has to do with the interests and the biases of the people that are on it.

Now, often you will find, and having reviewed people on the panel, I don't believe it is true in this case, but you will find that the proponents also have ex officio people on the regulatory side. Now, that happened in the case of

AECB having the president of Eldorado Nuclear and AECL on the board. The main intent of what I have read is simply that government has ceased, and this is corroborated by the quote from the Science Council, the government has ceased to represent the public interest objectively. They cannot, because they are all paid by the government.

MR. GRANT: I am not paid by the government.

THE CHAIRMAN: I think we could consider this for some time. There is nothing particularly new. I would like to correct one point. As I said in the opening remarks, we are not a quasi-judicial body and you should remember it in your remarks. Are there any other questions of the speaker? If not, I believe the next group has a time limit and I would like to get them on and perhaps have a coffee break and then the questions, if that would be acceptable. The Durham Region Federation of Agriculture, Mr. Donald Welsh.

SUBMISSION BY DON WELSH:

Durham Region Federation of Agriculture welcomes the opportunity to present our concerns regarding the location that Eldorado has selected to build their new facilities. We do not have the resources to do a detailed analysis of Eldorado's findings and our statements are only general, but in no way does this lessen our concern about the areas we will mention. We, and the rest of society, must rely very heavily on this panel to ensure the statements contained in these documents are accurate and the safety of people will not be jeopardized.

We are conerned with the number of plants that are being built in this area along the lake. Onatrio Hydro has a sight at Wesleyville and Pickering has been given approval for a nuclear site at Darlington, and have tentative plans to build another plant east of Cobourg. Studies conducted for a four year span at Wesleyville shows winds are toward the land approximately 35% of the year. While we realize they all say that there will be minute emissions from the sites, do not all of these, so close together create enough emissions to be of concern to the surrounding area and people? Someone must do a study to determine the effect all these emissions have on the environment.

How much consideration was really given to other proposed sites? Were in depth studies conducted or was only a token assessment made, and was Port Granby selected because of its close proximity to the Port Hope plant and the material which has to be moved and buried again?

LAND USE

We are concerned that land usage for waste disposal will be increased in future from the present statement of 70 acres. The original application to Durham Region for rezoning was 50 acres. Even 70 acres seems inadequate to enclose the burial of the material from the present lakeside dump (an estimated 400,000 tons plus), the contaminated soil from Port Hope, and the continued waste disposal from two plants, Port Hope and Port Granby, for the lifetime of this industry.

EMISSIONS

In recent years increased crop damage from industrial emissions in Ontario have been noticed. White beans and tobacco are two crops most affected. The statement that no damage has been caused to crops from the Port Hope plant is considered inadequate without a study.

WASTE DISPOSAL

The Environmental Impact Statement

concludes that the protective covering of bentonite will adequately protect the buried waste from the infiltration of water, and that this covering in turn protected by a later of earth protected from erosion by a cover of vegetation.

This statement fails to explain how this bentonite layer is to be permanently protected from fracture by penetration of tree roots, burrowing animals, and frost.

DRAINAGE

We are concerned that there is a future possibility of contamination of adjoining properties through seepage, and surface run-off.

As intimated at the beginning, we must rely heavily on this panel to determine the accuracy of statements contained in these documents. We trust that this will be done.

THE CHAIRMAN: Thank you, Mr. Welsh. Any questions of the panel?

MR. SHIKAZE: With respect to damage, is the farmland in that area tile drained, do you know? I don't recall reading about this in the report. Is it generally the practice to provide tile drainage in this area?

MR. WELSH: I don't know. I'm not from this area so I'm not exactly sure, but perhaps someone from the audience could answer. Does someone want to tell us whether the land is tiled in this area?

A CITIZEN: The property directly south of us was tile drained two or three years ago completely by Mr. Howard Payne. As far as the other farms, the Elliot one has been done, but not the complete farm.

THE CHAIRMAN: Thank you. Any further questions from the panel? Any questions from the floor?

MR. JOHN GEMBLETT: Did you submit a copy of your brief to the Federal Ministry of Agriculture?

MR. WELSH: No, I haven't.

MR. GEMBLETT: Do you plan to?

MR. WELSH: We do.

THE CHAIRMAN: Any further questions? It looks like everyone is interested in coffee. We will take 15 minutes.

--- Short recess

--- Upon resuming

THE CHAIRMAN: Ladies and gentlemen, we have another group with a time deadline and I would like to have the United Steel Workers of America go now and then we will come back to the government agencies.

Mr. Gil Wareham.

MR. WAREHAM: Mr. Chairman, I would like to apologize for Mr. Falkowski who couldn't be here. My name is Gil Wareham and I am the area supervisor for the United Steelworkers of America and with me is Mr. Michael Barko, the representative for Port Hope and Ron Jessop, a member of the Safety and Health Committee.

SUBMISSION BY MR. GIL WAREHAM:

Mr. Chairman and members of the Environmental Assessment Panel, I am pleased to be able to appear before you to present the views and concerns of the United Steelworkers of America regarding the proposed Eldorado Nuclear Uranium Refinery in Port Granby.

At the outset, Mr. Chairmam, let me express the concern of our Union that many of our members are exposed to environmental contaminants in the communities where they live and at their place of work through no fault of their own.

It may help thePanel to understand the structure of our Union and how each member of our Union has a role in the decision-making process.

Our International and Local Union officers are elected by general referendums of the membership.

The districts of our union are responsible for organizing, bargaining and the administration of the Union within the district, and the District Director is elected by the members of that district in a referendum. On February 8, 1977 Mr. Stewart Cooke was elected Director for District 6, which includes all of Ontario.

The Union functions in Local and

Area Councils. Members of the Locals set their own bargaining goals and vote on their contracts. It has been the Union's policy always to obtain the safest working environment possible. To give more emphasis to this objective, the International Constitution of our Union requires that every Local of our Union has a functioning Health and Safety Committee.

Our presentation today, Mr. Chairman, is simply this: We want to extend to this Panel our vital concern for the safety and welfare for all workers, their families and the community at large who are exposed to the hazard connected with industrial radiation.

On that basis of the prepared Environmental Impact Assessment study presented by James F. MacLaren Limited of Toronto, our Union is prepared to accept the decision for the Uranium Refinery to be located in Port Granby.

There is no doubt that the economy of the district will benefit in a number of ways by the construction and operation of the proposed refinery and waste-management systems. In considering the overall economic impact within the area, there will be a strong growth as predicted for the years ahead.

As stated on Page 4 of the abstract of the Environmental Impact Statement, "The feed to the proposed new refinery will come mostly from mines in Ontario, where the ore is crushed and milled to produce a concentrate called "yellowcake" (U_3O_8) which is about 70% uranium....."

Mr. Chairman, yellowcake is the "feed" for the proposed refinery but our Union is vitally concerned that all workers within the nuclear fuel cycle are properly protected.

The Nuclear Fuel Cycle includes Mining, Milling and Refinery for which the Atomic Energy Control Board has prepared regulations for the protection of the workers.

Our Union represents the workers involved in uranium mining and milling in Elliot Lake who supposed to be protected by the authority of the Atomic Energy Control Act. The track record of the Atomic Energy Control Board to protect the workers properly from unsafe and unhealthy conditions is not good, and it is totally unacceptable to our Union.

Mr. D.J. Dewar, the Scientific Advisor of the Atomic Energy Control Board, explains the history of control developments briefly as follows: "When Canada's lawmakers enacted

the Atomic Energy Control Act in 1946, establishing the Atomic Energy Control Board, their prime consideration was security, and this was the prime concern of the Board when it issued its first Regulation in 1947. In licensing early atomic energy operations, therefore, it concentrated mainly on security matters, and by agreement with provincial authorities, invoked provincial safety regulations and standards. These provincial regulations and standards. These provincial regulations, however, did not deal with radiation safety. Consequently, when atomic energy applications became widespread, the Board included in its regulation a part dealing with radiation safety which had been recommended to it by federal and provincial departments, and it requested these departments to assist in the administration of these radiation safety regulations. Though the section was worded generally to cover all kinds of atomic energy operatios, inspection officers were authorized to issue special instructions or directions in connection with specific kinds of operations."

The Atomic Energy Control Board, however, did not use their authority for the protection of the workers in the Uranium Mines and Mills in Elliot Lake.

A study released by Dr. J. Muller in September of 1974 in Bordeaux, France titled "Causes of Death in Ontario Uranium Mines" states in part: "Uranium Mining and milling in Ontario started less than twenty years ago. It was of interest to find out if an increased lung cancer risk could be demonstrated in these mines.....A nominal roll of 8,649 past and present uranium miners was matched against Ontario death certificates from 1955 to 1972. Among the 216 non-violent deaths there were 75 deaths from malignant neoplasms including 41 deaths from pulmonary cancer. The number of lung cancer deaths observed is significantly greater than the number expected from Ontario experience."

Dr. Charles Steward, M.D., of the Ontario Workmen's Compensation Board sums up the Elliot Lake experience as follows: "The first mine and mill came into production (in Elliot Lake) in 1955. Over the next 4 years an additional 10 mills and 11 mines were opened.

The host rock contained free silica in the order of 70%. This is in marked contrast to the Porcupine and Sudbury camps: 30% and 4% and 8% respectively.

Mining this ore body presented a very significant potential resk, but it was believed

that the existing mining technology (including dust control) was adequate to cope with this problem. If there were any doubts, they were overshadowed by the enormous and dazzling contracts secured by the federal government from the U.S. atomic energy commision through its own agency, The Eldorado Mining and Refining Company - - total value: one and a half billion dollars."

Dr. Stewart concluded his statement with these remarks: "In a real sense, the workers - no one else - have paid the price for the urgent commitments assumed by the Federal and Provincial governments in the 50's."

The Nuclear Fuel Cycle (The Elliot Lake Mines) is also responsible for the contamination of the Serpent River Basis. The 1976 Status Report "Water Pollution in theSerpent River Basis" published by the Ontario Ministry of the Environment leaves no doubts that the radium content is in excess of the permitted level, and it is rather clear that mining and milling in the basin is responsible for the elevation of radium and the high loadings of ammonia sulphates, as well as the decrease of the P.H. level.

The problems at the Port Hope installation have received sufficient attention

in this area; therefore, further comments are not necessary. The proper protection of the workers in that installaiton will have to be examined, however, since the Atomic Energy Control Board cannot be trusted with the health protection of workers.

Our Union, the United Steelworkers of America, has a tremendous stake in the prevention of accidents and occupational diseases. The pain and suffering, and all the ill effects and loss of earning power, fall heaviest on the worker and his family.

Our Union recognizes the fact that the proposed Port Granby project will be of substantial economic benefit to the region. The Port Granby project, however, is only one part of the Nuclear Fuel Cycle, and our Union can only support this project on the basis of the published Environmental Impact Study, if the entire Nuclear Fuel Cycle is properly protected -- which is not the case at this time.

I will leave out the last paragraph, Mr. Chairman, because Mr. Falkowski could not be here.

THE CHAIRMAN: Any questions from the panel?

DR. DEROW: I am interested in clarifying the last paragraph. Do you mean that you would support the impact statement if indeed it discussed occupational health more specifically?

MR. WAREHAM: Right.

DR. DEROW: Could you point out some specific deficiencies in this impact statement in regard to the health concerns of the Union?

MR. WAREHAM: No, I would have Mr. Valcousy available to do that. I could do that in writing, but he will be available for further hearings, if you have any.

MR. LANG: On the top of page 7, the paragraph which says that further comments are necessary on the existing refinery and what kind of a working environment that creates for your people. I wonder if you could say something about any kinds of problems you have encountered in the existing refinery and might expect in the new one.

MR. WAREHAM: We do have problems and we have two people now out of the refinery with

suspected lung cancer, but we haven't proven yet that it has happened from their work environment, but they are still under treatment. They haven't received Workmen's Compensation for that, but we are trying to get an application for them.

MR. LANG: Again, some documentation would be useful, if you could provide it. I mean, whatever information they have on the health and safety and the problems in the refinery operation.

MR. WAREHAM: We can get that for you.

MR. LANG: I guess you would have made submissions to the Environmental Assessment Board having hearings now and have had for some time in Elliot Lake?

MR. WAREHAM: We haven't, no.

MR. VELDHUIS: Mr. Chairman, let me assure you I'm not going to ask any questions beyond clarification, but can you give us some sort of broad outline of the type of problems associated with the Port Hope operation? I am not asking for specific people and details, but what kinds of problems are we looking for or looking at, I should say.

MR. JESSUP: Maybe I should answer that. I work with the Health and Safety Committee and basically we have the same problems as any other

industry. We have dust and fumes and things of this nature. Now, as far as radiation, we have very little radiation right now compared to what there was years ago, but we basically have problems with acid fumes and dust fumes which should be very easily sorted out and cleaned up and which are being done at this time through the Health and Safety Committee. But our feeling is that it should be done more, you know, faster than it's being done, but it is being done.

MR. GEMBLETT: Mr. Jessup, have any of your fellow workers been hurt or injured due to explosions inside the plant?

MR. JESSUP: As far as radiation is concerned? What exactly are you talking about?

MR. GEMBLETT: Well, there has been the odd explosion inside the plant in the last 15 years.

MR. JESSUP: Not to my knowledge.

MR. GEMBLETT: Thank you.

MR. LANG: I was wondering about the transport of the waste material to the waste management area, then the operation of the waste management area itself. In the existing waste management area, do you see any problems as far as your workers are concerned?

MR. JESSUP: Well, at the present

time all the vehicles from Eldorado are being completely cleaned and washed off and there is no contamination on the outside and the contaminated material is hosed and is transported and this has been done for some time now. It wasn't done in the past, but there were no problems foreseen at that time, but now there has been, so it is being looked at right now.

MR. FISHLOCK: I am just wondering about the idea of management of the management responsibility of making the workers aware of the total industry as a whole. You are talking about the fuel cycle, but considering the industry as a whole, do you think that management should attempt to make the workers aware of it?

MR. WAREHAM: We have continual meetings.

MR. FISHLOCK: I am thinking more specifically about other sectors, such as mining and the generation of electricity from uranium. Do you feel any responsibility to the other workers in other sectors of the total industry?

MR. WAREHAM: Yes, we do. We represent the workers in Elliot Lake.

MR. FISHLOCK: Well, I am thinking more of the power plants. Has there been any

education about the risk? Does that seem to be where the real controversy rests and do you play a very important role?

MR. WAREHAM: We haven't done any education, no, in that field.

MR. FISHLOCK: Would you consider a government program if for some reason this industry was found to have unfavourable effects on the environment, to create your work in another industry to generate alternative electricity, would you be in favour of that?

MR. WAREHAM: We would be in favour, absolutely, yes.

MR. GEMBLETT: This is a point of clarification. Do you currently have a union man named Tom Markovski that you are aware of, and has he ever been injured in an accident?

MR. JESSUP: Yes, he has been injured, but it wasn't an explosion.

MR. GEMBLETT: But it was an upset though.

MR. JESSUP: It was a leak.

DR. BIRD: I would just like to come back to the first question of Ellan Derow raised because I have got a slightly different interpretation of the last paragraph. I believe when we talk about

the last paragraph we are not talking about the second last, because you deleted the last paragraph, if I understood you correctly. In response to Ellan's question, you indicated that you would be prepared to support the Environmental Impact Study provided that consideration was given and it was amended to include considerations of the working environment in the plant, is that correct?

MR. WAREHAM: Correct.

DR. BIRD: From my quick reading of your brief and listening to what has been said, I thought that you had implied in your reference to the entire nuclear fuel cycle, consideration of, for example, all the risk associated with the mining operation as well.

MR. WAREHAM: Right.

DR. BIRD: Therefore, I was reading into this last paragraph an implication that you felt that the study to merit your support should also take into account the risks, the miners at Elliot Lake -- it went beyond the workers in the mine itself.

MR. WAREHAM: In the refinery, right.

DR. BIRD: That is your position?

MR. WAREHAM: Right.

DR. BIRD: And, in fact, you haven't clearly, in my way of thinking, had a position with

respect to the proposed plan as it stands today, as the proposal stands today.

MR. WAREHAM: Without taking a look at the whole nuclear cycle, that's right.

MR. CHENG: Am I correct in stating that you are considerably much more concerned with the effects in the mine rather than at the plant itself?

MR. WAREHAM: Right. That is true, yes.

MR. GRANT: There has been some discussion about plant safety and Eldorado has taken the position that we don't propose to go into the details in which plant safety will be done. That is a matter we will have to deal with at the Atomic Energy Control Board. I understand that the union has an industrial safety committee and I think the gentleman to your right is a member of that. That committee, I understand, meets periodically with management, and has that arrangement or that relationship been satisfactory in terms of resolution of past problems, the committee meeting with management?

MR. WAREHAM: It has been, but sometimes it takes quite a while to get things rectified.

MR. GRANT: But, if something happens

do you bring that to the attention of the corresponding committee in Eldorado?

MR. WAREHAM: Yes, we do. There is a joint committee.

DR. DEROW: I would like to ask further about the health and safety division, but also if the Atomic Energy Control Board, do you meet as well with the Atomic Energy Control Board?

MR. WAREHAM: No, we have meetings where the Atomic Energy Control Board and our Union in Ottawa --

DR. DEROW: Could you speak into the microphone?

MR. WAREHAM: We have had meetings where the Atomic Energy Commission, our Union, not necessarily any one given local, but for the whole industry in Canada, the mines in Saskatchewan and Ontario refineries.

DR. DEROW: On a plant by plant basis? You are not discussing both with management and the Atomic Energy Control Board? You are not included in these deliberations.

MR. WAREHAM: No.

THE CHAIRMAN: Thank you. I will turn now to the Atomic Energy Control Board, Mr. Barry Parsons.

MR. BARRY PARSONS: Mr. Chairman, and panel members and members of the audience, my name is Barry Parsons. I work for the Atomic Energy Control Board in the mine, chemical and waste management divisions. At the request of the panel, I am here this afternoon to describe to you the role and responsibility of the Atomic Energy Control Board and its regulatory process in the licencing of such a facility as that being discussed here today. Also, I would like to discuss how the environmental assessment and review process is factored into the Atomic Energy Control Board licencing process.

The Atomic Energy Control Board is a nuclear regulatory agency whose responsibility is to make provision for the control and supervision of the development, application and use of atomic energy and to enable Canada to participate effectively in measures of international control of Atomic Energy. The Atomic Energy Control Act gives the Atomic Energy Control Board the power to regulate the nuclear industry with regard to the protection of the health, safety and security of the employee and general public. The Atomic Energy Control Regulations which specify the controls were made pursuant to the Atomic Energy Control Act.

The licencing practice of the Board

basically consists of three phases during which a prospective licencee must apply for licence, those being siting, construction and operation.

For siting authorization the applicant must submit documentation to the Board describing the type of facility proposed and essentially justifying that type of facility on that particular site. Information is provided on all potential, routine and accidental releases and their impact on the environment. This includes a detailed analysis of soil and land characteristics, water and air pathways, population densities, et cetera.

The regulatory requirements of provincial, federal and municipal agencies are reviewed and coordinated. At this stage, the environmental assessment and review process which considers sound economics as well as technical issues is factored into the licencing process. On completion of the hearings, the comments raised and issues discussed will be reviewed. A licence for siting authorization will only be issued by the AECB after all of their requirements are met.

The construction approval stage is a comprehensive evaluation of matters relating to the health and safety of the workers and general public and any potential effect on the environment and

community. Essentially, it is an evaluation to determine if that kind of facility can go ahead.

Finally, the operating approval stage. This is essentially that that kind of facility can as built be operated safely. This requires an assessment of equipment and procedures to ensure that all reasonable precautions have been taken to protect the workers and general public from normal operating and any postulated irregular conditions.

After an operating licence is obtained, the Board's involvement doesn't end, but becomes one of compliance and monitoring to ensure that the licence conditions are met and that the facility continues to be operated safely. This is done through the cooperation and assistance of the various federal and provincial governments.

I would gladly now entertain any questions on the AECB role and/or licencing process or to clarify further on any of the matters I have presented. Thank you, Mr. Chairman.

MR. LANG: At the very end you used the word "monitoring". What do you mean by monitoring?

MR. PARSONS: This is the monitoring of the operation, both the environment and the occupational health.

MR. LANG: What does monitoring involve?

MR. PARSONS: By the Board or the other agencies.

MR. LANG: By your Board?

MR. PARSONS: The Board itself does not monitor any of the operations at present. It requires that the licencee set up a monitoring program and the Board then monitors its program.

MR. LANG: Well, the word monitoring gives me a lot of trouble because I am not sure that someone goes out and takes a look at it or if it means measuring and if it is measuring, does it mean referring that information to someone for action? What is your role in the monitoring after they set up the process?

MR. PARSONS: Our role is really both. It is an auditing rather than a detailed monitoring. We don't monitor the environment or the plant site. We monitor the facilities. We don't take measurements, rather we review their monitoring procedures.

MR. LANG: Do you regard the information that comes out of their monitoring process as public? Obviously not.

MR. PARSONS: I don't really know off-hand. At present I don't think we make it available

to the general public. It is up to the company.

THE CHAIRMAN: Might I ask if it is available on request?

MR. PARSONS: To the Board?

THE CHAIRMAN: Well, if an interested member of the public were to write you and say could I have the monitoring results for 1975 of Eldorado, the refinery, would they be provided to them?

MR. PARSONS: I think we refer you back to the licencee.

MR. LANG: What would be the licencee's response to that? Is it available to anyone who wants it?

MR. GRANT: We don't regard it as public information, but we are not endeavouring to conceal any pertinent facts. If the person wanted it and had a reason for wanting it, we would probably give it to them.

DR. BIRD: Mr. Chairman, I would like to ask a question. What details of the licence conditions would the Board consider to be available to the public?

MR. PARSONS: It is only available to the licencee. They are available to the public if you visit the Atomic Energy Control Board in Ottawa. You can review them in the office, but we would not

mail you a copy or allow you to take a copy.

DR. BIRD: A second question, then. I have the impression from what you have said that it may be that some agency may also do some monitoring, some actual detailed measurement, whether it be the provincial or federal government, as separate from the obligations placed upon the licencee to do some monitoring. Correct?

MR. PARSONS: That is correct. The provincial and federal agencies also do some monitoring.

DR. BIRD: Would the same conditions exist there with the monitoring carried out by these agencies in terms of being available to the public?

MR. PARSONS: Details of the monitoring probably would not be available to the public as a general rule unless otherwise requested. I would think, if, however they were above some acceptable level, we would probably make them available in some form. The Board would probably issue a notice, in fact.

DR. BIRD: Do these agencies perform these functions as agencies of the Board or do they have the right, if they decided it was in the public interest, to publish the results without reference to the Board?

MR. PARSONS: They have the right to

publish them if they wish.

DR. DEROW: Mr. Parsons, in describing the three phases of licencing after you discussed the operating phase, I believe it was, you said that all reasonable precautions would be taken. I don't have the document in front of me, but as a point of clarification----

MR. PARSONS: Yes, I did.

DR. DEROW: All reasonable precautions. Now, I have a lot of trouble with the word reasonable because the definition of reason and reasonableness as we have probably demonstrated in this hearing varies considerably. How, in fact, do you feel or perhaps there is something written down, reasonableness or reasonable precautions are defined within your agency?

MR. PARSONS: I think one must take a look at current technology available and the economic and social conditions in any discussion. I think the fact is based on current technology, if it is available, if the technology is there to reduce effluent concentrations, then I think we would support the production.

THE CHAIRMAN: Any questions from the floor on AECB's procedures?

CARL ROSE: I have a number of

questions. I hope you won't be too technical, but I am really asking in a general way to enlarge on the question that was already asked about public availability of monitoring. Would these be available to members of parliament?

MR. PARSONS: Only on request.

MR. ROSE: More so than the general public?

MR. PARSONS: Yes.

MR. ROSE: The next question is what are safe, whatever you mean by safe, or allowable levels? I am not sure of the terminology for kinds of radiation. Are they the same in Canada as they are accepted by the United Nations, the United States and the United Kingdom and other countries? Is there sort of a generally accepted level for all radiation, alpha, beta and gamma readings?

MR. PARSONS: Yes, there are standards set and the Board has endorsed these standards on radiation levels in air, water and so on.

MR. ROSE: So, basically, Canada is the same as the rest of the world, then?

MR. PARSONS: Yes.

MR. ROSE: So, radiation scientists have stated there is really no such thing as a safe level of radiation. In other words, every level of

radiation increases the rate of mutation. Do you agree with that?

MR. PARSONS: I think you would have to take into account that in your daily lives you are confronted with radiation at all times. For example, I do not support any numbers I have heard, but I have heard numbers like 180 MilliRems per year, that type of radiation. The person who is working -- any radiation received above that must be taken into consideration and factored into ---

THE CHAIRMAN: I think we may be getting off the subject in asking Mr. Parsons a personal opinion of background radiation and so on. Perhaps we can discuss this at the next phase.

MR. ROSE: Does the Atomic Energy Commission consider various dosage levels on other organisms, the mutation on insects and plants? If mutation rates of some food crop was affected, that would obviously be important.

MR. PARSONS: We have done research in this area.

BOB FISHLOCK: I was just wondering, knowing what I do about the qualifications of a cabinet minister, what would the qualifications be of the top people in AECB?

MR. PARSONS: You are asking me ---

MR. FISHLOCK: Your own opinion, I suppose. Maybe some of them are doctors or they have a health background or they are technicians or members of industry or what are they?

MR. PARSONS: Most of the people of the people of the Board I would say have related or nuclear industrial experience. Like, they have either come from industry or AECL.

MR. FISHLOCK: But they are not doctors?

MR. PARSONS: We have on staff one doctor and then we have another advisor who is with National Health and Welfare who is a permanent resident at the Board office and an advisor to the Board. As well, we have several doctors, medical doctors on our advisory board.

MR. VELDHUIS: Mr. Parsons, you mentioned that the licences could be viewed in Ottawa at your office. If my neighbour, whom you don't know, came to Ottawa and went to your office and said I would like to have a look at the licences of the Port Granby dump, would he, in fact, be able to do so?

MR. PARSONS: If he introduced himself, yes.

MR. VELDHUIS: Good. I will take you

up on that. Our experiences were slightly different. Can you give me some ideas of the date of the first licence in Port Granby from the Atomic Energy Control Board? Do you have that information?

MR. PARSONS: Of Port Granby or of Eldorado Nuclear?

MR. VELDHUIS: No, the Port Granby dump.

MR. PARSONS: No. Prior to 1975 the Port Granby residue area was not licenced under a separate licence.

MR. VELDHUIS: So, in other words, they operated without a licence to the best of your knowledge?

MR. PARSONS: No, I didn't say that. They operated under a blanket licence. It was not until December 1975 that the Board issued a separate licence.

MR. VELDHUIS: There was a licence for Eldorado to find a suitable dump site somewhere and that was part of their total licence requirement of the total operation, is that correct?

MR. PARSONS: That's correct?

MR. VELDHUIS: If AECB does not take readings of the Port Granby dump, Eldorado does that or someone else does it for you. You monitor their

readings, is that correct?

MR. PARSONS: Well, they might go down there once a month as required and may take separate readings just to check on Eldorado Nuclear. But not on a regular basis.

MR. VELDHUIS: So, it is then conceivable that the readings we get or you get from Eldorado -- we don't get them -- that they could be lower or higher perhaps than what is recorded.

MR. PARSONS: What type of readings are you referring to?

MR. VELDHUIS: I am particularly thinking of readings of UF6, arsenic, natural uranium, or whatever Eldorado measures and monitors there, or perhaps airborne radiation or whatever you call that in the gas chamber. I'm not sure.

MR. PARSONS: Most of these are also taken by the Ministries. I believe the Ontario Ministry.

MR. VELDHUIS: And do you collate all these readings then or what do you do?

MR. PARSONS: We get copies of all these.

MR. VELDHUIS: Is that information available to the public?

MR. PARSONS: Not as a general nature.

MR. VELDHUIS: If I have a private concern, I being a representative of the public, I think my property may have been contaminated in some way, shape or form or perhaps I am concerned, can I get the AECB to act on that fear of mine and have them come and check my home or my property? How do I go about this.

MR. PARSONS: I think if you were in writing to state this to the AECB, some action would be taken, either by our department or by the Atomic Energy Control Board or by National Health and Welfare.

MR. VELDHUIS: Thank you.

MR. POCH: Mr. Parsons, you said that the regulatory requirements of municipal agencies, among others, are reviewed by your board to come to a licencing conclusion. Could you outline on behalf of my client what regulatory requirements of the municipality you do look at and to what extent does it play a part in coming to a decision? Are you talking about land use or surfacing requirements and whether they be supplied by the town or by someone else?

MR. PARSONS: I'm not able to answer that question. I presume it would be.

MR. POCH: Are there any written guidelines as such that you know of?

MR. PARSONS: At the Board?

MR. POCH: Yes.

MR. PARSONS: Other than the fact statement ---

MR. POCH: That's fine, thank you.

MR. GEMBLETT: Barry, you have mentioned the AECB was concerned about siting, construction and operation segments. Has the AECB made guidelines available ---

MR. PARSONS: For a UF6 plant?

MR. GEMBLETT: Yes.

MR. PARSONS: Yes, we have.

MR. GEMBLETT: Are they available?

MR. PARSONS: Yes, they would be.

MR. GEMBLETT: Earlier there was a mention of Eldorado's participation with the AECB at the Board level. Is there a member that sits on this?

MR. PARSONS: On the Board itself.

MR. GEMBLETT: Yes.

MR. PARSONS: No, there isn't.

MR. GEMBLETT: Thank you.

THE CHAIRMAN: No further questions?

MR. GRANT: Just one short question. Mr. Parsons, I think you said that Canada, particularly the Board, has adopted the ICRP standards with respect

to radiation. My information was the standard we have adopted is more stringent than the ICRP. Is that correct?

MR. PARSONS: Well, some of the standards are. The provincial standards are, yes.

THE CHAIRMAN: Thank you, Mr. Parsons.

Mr. Howieson?

SUBMISSION BY MR. JOE HOWIESON: My name is Joe Howieson and I am an employee of the Energy Mines and Resources. I was substituted at the last minute yesterday for Mr. Bob Skinner, who had prepared the comments from EMR. He came into my office weeping and running with cold and begged me to take his place. I am sure I will not be an adequate replacement, but our brief is very informal compared to some of the others that I have seen.

Basically the brief consists of comments from six individual experts within the Department. These are people with expertise in the ore processing area, the air dispersion area and hydrogeology, and environmental areas. Each of these gentlemen wrote individual comments on Eldorado's environmental impact paper.

The first one of these that was prepared was sent to Eldorado by Bob Skinner and the first part of our brief, pages 1 to 6, consists of

both the questions that were asked at that time and the answers that have been given by Eldorado. I don't plan to go over this in detail. The questions are there. In fact, what we are saying is that we have these experts and if the issues that come up later are in their area, they will be glad to volunteer to act as witnesses for the panel.

There are a number of issues which were rather big or came rather late to Bob to be treated in this way. These issues are given in the brief on pages 6 to page 11. In effect, trying to summarize this brief as far as the refinery is concerned in general, the plant existing in Port Hope has operated for seven years with no direct environmental damage. The proposed plant in the Environmental Impact Statement includes significant improvements to the present process. So, the questions that have been asked on the refinery are questions of detail only.

As far as the waste disposal problem is concerned, we have asked a number of questions which we think are rather difficult to answer. Thinking about this, in effect, we are looking at something that is going to have to exist for a very long time and you can take extreme views of what the human environment is going to be in a thousand

years. One can say, okay, there is going to be continuous civilization. If you take that point of view then the record of the plant would be available, the technology would be available and, presumably, if anything drastic went off, it would be removed. You take the other extremes and say, by golly, the whole world is going to go kaput and we're all going to have savagery around then. Would the effects of local radioactivity deposits of this nature have a significant effect on the genetic environment of the world? I submit at that time it would not. We submit some suggestions to improve the waste management, In effect, the wider use of bentonite clay.

Now, we suggested the possibility of evaluating the costs of controlled leeching from waste disposals. I think that is some of what I had to say at this time.

THE CHAIRMAN: Thank you, Mr. Howieson. I believe we may have some questions of the panel about your submission.

MR. LANG: I would like to ask a question, not so much of what is in your brief, but what is not in it. My reading of the Environmental Impact Statement says that there is a significant use of energy contemplated in the operation of the

refinery, and yet there is no mention in your brief anywhere of energy. I wonder if that omission and oversight was deliberate or was not thought to be an issue?

MR. HOWIESON: I am very sorry. I could try to answer this question but I would like to do it better. Bob Skinner didn't send out the copies. There were very few copies of this available and I guess he felt the most important thing was the people he sent them to. Energy conservation is important and to look at the plant at this stage of design and say, okay, it is not an energy conserving plant, is a bit premature.

MR. LANG: I wasn't thinking about conserving energy, but the fact it uses a lot of energy and it uses its product in the exporting of energy and it is using a significant amount of electrical energy and oil.

MR. HOWIESON: I think if you look at any, almost all export from Canada, you would find the same thing.

MR. LANG: If that were the case, that would be a concern of mine as well. You are telling me it is not a concern of your department?

MR. HOWIESON: I didn't say that. I just point out that such things as even wood

products and grain, and agricultural products do use a lot of energy in their preparation.

MR. BIRD: Thank you, Mr. Chairman. I am not sure whether my question really should be directed to Mr. Howieson or to Eldorado. So I will make it open to either. In reading through the brief, which I have, it was my perception that quite a few of the questions had been put by various members of Energy, Mines and Resources have not, in fact, been even addressed in the response that is quoted here in the paper by Eldorado. Now, I'm not sure whether Eldorado feels that they have not had time to respond adequately or whether they in fact, feel that the response does address the question, or whether it is a question of just trying to put something together within that time that was available. I simply don't know. I do not feel that the questions have been dealt with in many cases.

MR. HOWIESON: I should explain -- you are quite right -- I should explain that these are later submissions. There are some major questions that were not available in time for Eldorado to reply to them.

MR. GRANT: My information is that we really didn't have a great deal of time to deal with the questions in depth. We are prepared to

deal with these questions in depth and I don't think this is the proper time for them, subject to the Chairman's ruling.

THE CHAIRMAN: Was there a question from the floor?

MR. BOB FISHLOCK: I would like to get a point of information concerning the Ministry of Energy, Mines, and Resources and you may remember last year an article comparing Canadian Energy Policy with American energy policy and the lack of an overall Canadian energy policy. I don't know if things have improved since then. I also remember at a conference in Peterborough, inviting them there and they did happen to send Mr. Howieson and he said there basically what he said today, nothing. He said nothing again today. What is the Ministry of Energy Mines and Resources doing about energy policy for Canada?

THE CHAIRMAN: I am not quite sure that your question is going to help on the deliberations of Eldorado's EIS.

MR. FISHLOCK: I think it is important to the panel since they are a federal commission. They are supposed to be looking at the whole problem of Eldorado and assessing whether or not to have a uranium refinery. It is also linked with the

government lacking in overall energy policy. Maybe you should take back the fact that there seems to be something missing.

THE CHAIRMAN: All right. I'll accept that.

MR. HOWIESON: Could I say something on that last point, Mr. Chairman?

THE CHAIRMAN: Yes.

MR. HOWIESON: I think the understanding which seems to be around is that all of a sudden the United States have an energy policy because President Carter made some statement and no one else has an energy policy because their Prime Minister did not make a statement. There have been energy policy papers issued, big fat documents in 1973 and 1975 which are much more definitive than anything that has come from the U.S.

THE CHAIRMAN: Thank you. I would have to agree. Those papers are available. I have read through them and they are certainly available to the public and anyone interested in them.

MR. VELDHUIS: Mr. Chairman, there are two statements you made and I believe you said there were no problems at the Port Hope plant. You were describing the plant and so on. Are you talking about there are no problems in Port Hope

generally?

MR. HOWIESON: I am specifically saying there are no environmental problems as a result of the UF6 refinery in the neighbourhood of the refinery.

MR. VELDHUIS: Would you include in that Port Granby?

MR. HOWIESON: I did not include Port Granby.

MR. VELDHUIS: All right. You then, I believe, a couple of sentences later, said the new plant, referring to the one in Port Granby, would be better. That seems incongruous to me. Could you explain that?

MR. HOWIESON: The releases, the provisions that have been made for control of releases from the new plant in almost every case have been improved in the UF6 by Eldorado.

MR. VELDHUIS: That comes back to the first one. There must be some problems associated with the old plant. If you say the new one is going to be better, in my mind it at least assumes there are some problems, whether major or minor is not the question, but there are some problems with the old plant. Do you see what I mean?

MR. HOWIESON: There is such a thing

as engineering development, engineering improvements which any process goes through. Any new plant built, a new automobile plant, there will be improvements on that plant from the one before, particularly with respect to the emissions from the plant.

MR. VELDHUIS: I don't want to go on with this, but are you assuming the new plant will be better by projecting into the future?

MR. HOWIESON: I am comparing the statement in the EIS, the design in that document with the design in the existing plant.

MR. VELDHUIS: Okay, thank you. I have no further questions.

DR. BIRD: Mr. Chairman, I would like to make a comment on this particular point. I have attempted to read the EIS in total and I must say that I did not find the kind of evidence that you have just referred to, Mr. Howieson. I found reference a number of times to statements which implied and stated very clearly that there were improvements in technology, but they were not enumerated, and in fact, there was a pretty clear indication that most of that information was proprietary and, therefore, was not available, except on very special request. We, in fact, asked for material and information from Eldorado to try to come

to some assessment as to the efficiency with which the product is taken from the input to the output stage, but I do not recall myself, and you may prove me wrong, having seen the kind of supporting evidence that you have implied that you saw in the document. Are we really that much different here?

MR. HOWIESON: Yes, I guess it is a matter of degree of skepticism one has in reading such a document. As you say, there are many places in there where an improved technology is referred to. I may be more in line to accept that at face value.

DR. BIRD: Thank you. I have no further questions.

THE CHAIRMAN: We now proceed to the Province of Ontario who has been waiting patiently.

SUBMISSION BY MRS. BEVERLEY THORPE:

My name is Beverley Thorpe. I am from the Environmental Assessment Section of the Environmental Approvals Branch, Ministry of the Environment. I am here as the Provincial Coordinator of the brief that has been presented on behalf of the Province of Ontario. I think I have to continue to clarify this provincial brief, especially to Mr. Grant.

The reason we are here today is to

clarify some of the questions that were raised when we presented our brief on the evening of Wednesday, September 28th. There were several questions raised at that time, particularly by members of the panel. So, in the interests of brevity, to try and get through this, I would like to just run down that list of questions and we have just distributed to the panel in written form, answers to most of those questions. But, I would like to list that for everyone's benefit.

There was a question for a summary of the monitoring information collected by the Ministry of the Environment with respect to the Eldorado operations in Port Hope and where contraventions had occurred, contraventions with respect to Ministry objectives and standards. The panel has a summary of that information from, I think, 1975 onward. There was also a request by the panel about how long monitoring would continue after the plant closed down. If I can find it here, -- you did call me unexpectedly -- I actually thought we might get on this evening. I'm going to have to come back to that one, sorry. I have mislaid the answer to that question. I will get it for you right away. We only had one copy of that answer.

There was another question that was asked about the status of the Ministry of the

Environment results, especially with respect to the Abitibi case and there was a question why the information was or was not available. In addition to the regular monitoring that the Ministry of the Environment carries out, which is public information generally, there is often special monitoring instituted where there is a concern that contraventions or special problems might exist. Where the special monitoring for prosecution purposes, or purposes of issuing a control order is carried out, information is not made public until a letter of intent has been sent to the company, the letter of intent to issue a control order or the letter of intent to prosecute, because we don't want the disclosure of that data out before we have collected sufficient data and analyzed it for our purposes. In the Abitibi case, the district officer had made information public subsequent to the issuing of the letter of intent and the press contacted an officer in Toronto who was not aware of the most up-to-date status of the information leading to some confusion about whether or not it was public. The only reason it is not made public is during the collection period, is the Board would have to decide whether to proceed with a control order or prosecution.

As to the question about monitoring after the shutdown of the refinery, there would be three kinds of monitoring. The ground water observation wells would be routinely monitored indefinitely or until concentration of significant materials are reduced to acceptable levels. In the case of where there is going to be a continuing dissolution of the material into the groundwater, the monitoring would obviously continue indefinitely. Air monitoring would be continued to verify emissions and do not continue after the plant is shut down. Water quality monitoring in Lake Ontario, receiving water in the case of the Port Hope refinery, is continuous.

There was also a question about data handling. What happens to the data? Routine monitoring data is forwarded to the district office where it is reviewed and assessed. Copies of all analyses and reports are forwarded to Eldorado and any other agency requesting the same, as in the case of Eldorado, the Atomic Energy Control Board. Requests from other parties, such as members of the public, are dealt with as received. Information is forwarded to any party requesting specific items. When the data indicates emissions from a plant exceed provincial standards or guidelines or cause any adverse environmental effects, the company is

asked to undertake corrective action. Monitoring and abatement action is continued until the emission is in compliance with the provincial requirements.

There was also a question about the monitoring data as to how long it takes to process monitoring data. The answers to this are variable depending on the item being monitored. Some analyses are carried out by the Ministry of the Environment labs. Radiological monitoring is carried out for the Ministry of the Environment by the Ministry of Health labs. Water monitoring, chemical analyses from MOE Laboratories takes approximately two weeks. Radiological analyses from Radiation Protection Laboratory takes approximately two months. In the case of air monitoring, fluoride analyses and dustfall analyses both done in the Ministry of the Environment, takes three months to analyze the results.

In the case of phytotoxicology, there is the vegetation damage which is an immediate report upon inspection. The reports are issued three to six months afterwards. Special studies, the analysis is variable according to the complexity, analysis and the urgency of the situation in the program required.

There was also a request about the radiological objectives for industrial effluents.

These have not been developed by the Ministry of the Environment to date and we are continuing to try and work on those. At the present time the only radiological objective we have for water is drinking water criteria.

There was also a question about how the approval process that the Ministry of the Environment has is carried out and there is an explanation which I think is adequate, but if there are any questions from the panel, we will try and get the answers. In addition to the explanation of that approval process, we will also give you copies of a publication called Guidelines and Criteria For Water Quality Management In Ontario. That booklet in conjunction with the Environmental Protection Act regulations which you received last Wednesday set out all the standards and objectives that the Ministry uses.

On Thursday, September 29th, the panel asked that I supply a copy of the report prepared by Dr. Muller on his findings with respect to the causes of mortality in Port Hope compared with the general population of Ontario. The report was referred to by Mr. Frost from Eldorado. You have received copies today of those analyses. Dr. Muller did not prepare a formal report at that time because his findings did not indicate any radiologically

associated health problems in Port Hope.

Just to clarify what that report shows, just to go through the tables, there is a breakdown of the causes of death on the first page, covering the period from 1960 to 1973. The subsequent pages break that down to shorter sections, 1970 to 1973, 1965 to 1969, and 1960 to 1964. The causes of death are listed and they are fairly clear on the left hand column. There has been a breakdown by male and female deaths and the reported deaths are from the death certificates in Port Hope. Then there are estimates done of what you would expect based on the general population in Ontario. In the final column is the standardized mortality ratio which is a correction for age. So, if there is a different age distribution, that is corrected.

I also want to clarify three other points with respect to our review. These are really in the form of additional questions and are directed at Eldorado. With reference to page 10 of our review, Question No. 2, which was a question for additional information on emergency and accidental situations, I wanted to clarify that we are requesting information there on the effects on both the occupational health aspects and the natural environment. It is not limited to one or the other.

Page 788 to follow

There are two additional questions which were not contained in the report. One is that we would like to get some information from Eldorado on whether or not there will be any work done with enriched material at the new refinery, as being the case in the past on an experimental basis in the Port Hope refinery, whether or not they are moving their research facilities to the new location. Also we would like to know when the UF6 operation in Port Hope will be phased out.

THE CHAIRMAN: Thank you. One question I have is in the distribution of this material, the material you have given us, are there additional copies available for those interested or do we produce them?

MRS. THORPE: I would like the panel to reproduce them. We have some time problems. If you are going to be reproducing stuff for the intervenors, you might as well.

THE CHAIRMAN: I was thinking more of the little green book.

MRS. THORPE: The little green book is generally available from the Ministry. I gather it is under revision right now. The objectives are under review periodically and there are going to be new books, but we are out of stock. I don't

know when they will be published. If you would like to reproduce the appropriate pages, or if there are questions from the members of the public, we would like to fill those requests when the publication is re-issued.

MR. LANG: I missed it at the beginning of the presentation, where is the information that you first mentioned? It is being reproduced? We didn't get it. Which information was that.

MRS. THORPE: The summary of the monitoring. That was prepared in the regional office and there was only one copy and it has been given to Mr. Timmermans who will re-do it for the panel.

THE CHAIRMAN: Any other questions from the panel?

MR. CHENG: I would just like to refer to this study.

MRS. THORPE: I can't hear you at all.

MR. CHENG: I would like to refer to the causes of death study that you handed out. I notice there are items which are significant, at 5 per cent or 1 per cent levels, and that is a comparison to the estimated deaths in the rest of Ontario or wherever it is. What do they mean?

MRS. THORPE: Well, the gentleman is here and perhaps Dr. Muller could explain.

DR. MULLER: We prepared these numbers at the time when we had some problems in Port Hope. There was contamination in certain houses and, of course, we were concerned about possible health impacts of this contamination. So, I wouldn't call it a study. It is simply a routine type of work that we do normally. We check whether we can find any prove of a health effect of a known contaminant in the environment. So, it is not a big study. We have not written a big report two inches thick, but we put numbers together and we draw our conclusions from it.

I understand, sir, that you asked why in some instances we find that there is a significant difference. We find one particular item, that is cardiovascular disease, in one period from 1970 to 1973, we found it to be higher than expected based on population statistics. This, of course, will affect overall diseases, because it is part of them and, of course, will affect vascular diseases. There are several possible explanations.

First of all, I would like to say that we have good evidence that this is not so, that radiation at low doses increases the risk of cardiovascular disease, we have no such information and we can quite happily discard that hypothesis.

Of course, Port Hope is a very nice place and close to Toronto and many people come to Port Hope to retire. Some people have retired in Port Hope because of age and some people might retire in Port Hope because of some cardiovascular problem. This might explain the somewhat higher risk of cardiovascular disease in a city of this type. I don't say that this is true but this is what comes out when looking at the figures. It is not the age because the age difference is accounted for. But we cannot account for the reasons why people move from Toronto to Port Hope. This is very difficult to do and cardiovascular disease would be an indication that that might possibly be the cause.

MR. CHENG: I'm sorry, I missed the point why you discounted the radiation as being the cause of cardiovascular disease.

MR. MULLER: This, is because Port Hope is not the only source of information on radiation effects. We have observed radiation effects on populations in other places and from all these other data that I am aware of we have no, absolutely no indication that in the region of low doses that the cardiovascular risk, the risk of cardiovascular disease should significantly increase. I am not speaking of that -- I am stressing the fact that I am

talking of low doses, where the effect could be observed that these low doses, at low dose rates, what we sometimes call drastic effects, there is an increased probability.

MR. LANG: I would like to explore just a little bit more what you could consider to be a significant factor that has come out of this study. It seems to me that with such a wide range of population, one could explain almost anything. What would you expect, what figure in your statistics would you consider would indicate some cause of concern?

DR. MULLER: I am using the term significant in a statistical meaning of the word. What we mean by signficant, those numbers that carry one asterisk, this type would occur by chance five times out of a hundred, or those numbers that we call significant but, the probability is small enough that we believe it is not a chance event or we believe we have more confidence that there is a significant difference if we can say such a thing would occur only once in a hundred times by chance. Again, these numbers are indicated with two asterisks and that is what we mean by the word significant. It is not how you judge it ---

MR. LANG: But, I am just wondering if you could visualize getting results from a study

like that that would in fact enable you to make a reasonably positive conclusion and say such and such indicates this causes that or it doesn't. I am not trying to scare you, I am just trying to see if this evidence would lead you to such a conclusion. If you were to find a very high ratio of liver disease or lung cancer, is there enough there, or is it a matter that could be explained in any number of ways, one of which is increased radiation from industrial waste?

DR. MULLER: Well, first of all, the fact that we don't find a significant difference does not mean that there is no such difference. There could be one, but we are unable to illustrate it at present. We feel that the data in 20 years or 30 years might perhaps be able to find some difference somewhere, but we do take into account the fact that there is a normal chance -- all I'm saying is from that data we cannot conclude the measure of effect. I would never dream of saying that we have proved that there is none. That is the first thing I would like to say.

Secondly, I should say that a study of this type does not allow you to identify a cause and effect relationship. All you can say is that there is an association in these findings. You

cannot say there was a cause and effect relationship. For example, if we find increased risk of cardiovascular disease, all we can say is that we found it, but I couldn't promise or wouldn't like to say it was due to this in particular. I have only hypothesized because you have invited me to do so.

MR. CHENG: I appreciate the explanation of the statistics, but just looking at the table, 1970 to 1973, counting up the males, the incidences where you have numbers higher than normal, nine out of eleven entries, can one conclude anything from that?

DR. MULLER: What table are you referring to?

MR. CHENG: 1970 to 1973.

DR. MULLER: Yes.

MR. CHENG: I see that the numbers you have, the male causes of death, the male death rate on the extreme right hand corner. I see all the quotations where you have numbers higher than 100. There are about 9 out of a total of 11. Does that infer anything?

DR. MULLER: At the same time I would ask you to look at the numbers, the absolute number of cases inspected and observed. You will find in most instances the numbers are very low and the

fact you have had a standardized ratio that is greater than one, that is really completely meaningless in this case. It has very little meaning.

On the other hand, you will find diseases of the circulatory system is everywhere a significant number. The other significantly increased number is death from all causes, all disease causes. It is part of it. It is included in it and it carries a lot of weight, because circulatory diseases, if you look at the table, you will have 135 reported deaths over this period out of 206 total disease causes. That is more than 50 per cent. So, any increase there will have a great effect on the death rate from all causes.

DR. BIRD: Dr. Muller, I have two questions. Do I understand correctly that the original reason for you to begin to even look at these data in Port Hope was because of some possible implication of the radiation problems in the city or the town?

DR. MULLER: That is right, sir.

DR. BIRD: And you have made a comment that Port Hope is a nice town in which some of the people from Toronto would like to retire to and so on? I would have thought that Cobourg, a city or a town of almost the same type as Port Hope located

just a few miles further east would have many of the same features that Port Hope would have in that particular sense. It would seem to me that it might have been very useful if, in fact, you had done a control study, if you looked at the same kinds of data for Coburg against which you could do a comparison. Was there some thought given to that problem.

DR. MULLER: Yes, we did at the time. I think we could very easily do this. There is no problem in doing it. It could be done, but there is one shortcoming and that is that you have the control group and the group you are studying, that you are dealing with, you are dealing with small populations. This will have an effect on the size of erro and this will cause problems there. So, taking into account that we're dealing with the town which at the time had a population of only about 8,000 inhabitants, you want to get at least some idea if you could demonstrate a risk, you want to get a control group that is sufficiently large so that you can actually compare them if you take the Province of Ontario, you can include the whole population in Ontario. In our case, we would have to consider that and take it into account in the control group. That is the reason we picked Cobourg as the

control group for determining what the natural background in Port Hope might be, but we did not pick the same city for this type of study, because we were afraid of the size of error.

DR. DEROW: Are you continuing your studies in mortality in certain sights around Ontario where perhaps there are community health problems?

DR. MULLER: Yes, I must protest calling it a study. It is research work. There is no great science in it. It is a collection of data, we collect it on a routine basis. If we have any reason to believe there might be a problem in a certain area ---

DR. DEROW: Is there a standard monitoring, so to speak, in regard to mortality, causes of mortality and things?

DR. MULLER: We have, up to now, for a number of years we have been doing this, most of our work by hand. We are changing that system at present and there will be a system of mathematic monitoring in this respect by computer in cooperation with the Ministry of Labour -- not the Ministry of Labour, but with the computer group.

MR. DUNCAN: Just a continuation of that, Dr. Muller, if you could maybe indicate some of the study areas that may be of interest to this

panel.

DR. MULLER: Which areas?

MR. DUNCAN: You were talking about studying in a variety of areas in Ontario in relation to this study -- I'm sorry data collection. Could you indicate some of the areas that may be of interest to this panel?

DR. MULLER: Yes, we have looked into Elliot Lake Mines separately and I think that has been mentioned here today. We are carrying out a more detailed study of this at present and we hope to get some results probably in a year's time, because we have considered the study that we carried out which we published first in 1974 which was a very preliminary study because we wanted to know first, is it worthwhile to go and do this and is there any problem, is there any reason to believe there might be no problem. Perhaps it might be of interest to the panel, because that has usually been overlooked. The fact that in Ontario from the point of radiation exposure, it has been far far better than any other mine that I know of. Certainly much better than the United States' mines. Certainly much better than the European mines. This was a very good reason to ask if there was a problem at all. The concentration in the Ontario mines, they were lower by a factor of

ten than anywhere else. So, we are usually saying what material things did we do in these early sixties and late fifties and negated the problem. I feel in Ontario we have done very well and that has been very often overlooked. I would like to stress that point. So, we are looking into this. We have looked at the population of Elliot Lake. We have looked into the populations that are not exposed to radioactive substances, radon gas, but some chemicals. Also, some exposure studies we have done in population groups and other studies of this type are being done.

THE CHAIRMAN: Dr. Muller, I think we are probably getting well into Phase II. I hope you will be able to attend parts of that, if this becomes an issue. Are there any other questions of Ontario?

I would like a clarification as to the responses that Ontario did give last week. What stage are we at in terms of responses?

MR. GRANT: We are expecting to deal with a great deal of them on Thursday night. As you know, we have scheduled that session specifically for responses and additional questions from the panel.

THE CHAIRMAN: Thank you.

MR. GRANT: I hope we can deal with some of these new ones at the same time, but I don't promise to do that.

MR. LANG: I am just looking quickly through the material on the results of the monitoring and I suppose for some people that would give them the information they want, but it doesn't for me. I still don't know what it is you are monitoring.

MRS. THORPE: I think if you refer back to the information we gave you last Wednesday, we indicated on page 1 what was monitored. If you go through that we will tell you in each case what the monitoring information was, where the analyses were carried out. In the summary, we only dealt with where the parameters were exceeded. This publication I am referring to was entitled Monitoring Programs of The Operation of Eldorado Nuclear Limited, Port Hope, Ontario. I would be happy to go through these with you, but I am not certain that this is something we should take the time to do now.

THE CHAIRMAN: It is 5:25 and we have to be back tonight at 7:00 p.m. I think this is an appropriate time to adjourn until 7:00 o'clock tonight. Thank you.

--- Whereupon the hearing adjourned at 5:25 p.m.

--- Upon resuming at 7:30 p.m.

--- Chairman's opening remarks.

THE CHAIRMAN: Our first speaker is Miss Victoria Clark.

SUBMISSION BY MISS VICTORIA CLARK:

Mr. Chairman, members of the panel, my name is Victoria Clark. I am a grade nine student. I have elected to speak for 70 of my fellow students whose signatures I have. Man has always had to face hardship and danger in the form of war, flood, earthquake, plague and famine. These things we have no control over. We hope we have some safety against dumping dangerous material in our area. Why beautiful Port Granby? Why take away the beauty of the lakeshore? Someone said in these hearings that the proposed Eldorado affair would not be so ugly. That is like telling a man who has lost one arm that he is lucky he didn't lose two. I have friends near the lakeshore who watch in disbelief at the houses and farms being boarded up around them. I don't ask this question flippantly, but would any of you sitting on the panel want a radioactive dump site in your backyard?

We are taught in school that democracy is for the people and by the people and let the people whom we have elected to govern the

country see the wrong being done in Port Granby. Let us turn our backs on this foolhardy pursuit and find another way to process power for the sake of my generation and those who follow us. Thank you.

THE CHAIRMAN: Thank you, Miss Clark. Are there any questions by the panel? We had the same reaction when we had another high school student here last week. Students seem to do better in presenting their briefs than perhaps others. Any questions from the audience? Another perfect record. Thank you, Miss Clark.

Our next speaker is Douglas Saunders from the Greenpeace Foundation.

MR. VELDHUIS: Mr. Chairman, I am obviously not Doug Saunders, but Doug Saunders did call me and said he was caught in some unfortunate traffic problems in Toronto and he will be here later on and could he be rescheduled?

THE CHAIRMAN: Thank you. Dr. Andrews?

SUBMISSION BY PROFESSOR ANDREWS:

My name is Professor D. G. Andrews of the Department of Chemical Engineering of the University of Toronto. I have a brief here. I asked for secretarial assistance to be delivered here at 11:00 o'clock this morning and it didn't arrive. You

will get a type script copy as soon as possible. I will try to give you, Mr. Chairman and members of the panel, a resume of the content of this brief. Some of the items I have put down here I would propose to read in full, with your permission.

--- REPORTER'S NOTE: Due to the complexity of Dr. Andrew's brief and the speed at which it was read, it is impossible for me to transcribe. However, this brief will be submitted separately.

THE CHAIRMAN: Are there any questions of the panel?

DR. BIRD: Dr. Andrews, it was a little difficult as panel members to be able to digest the wide range of technical material and detail that you presented, but might I take it, in fact, your brief will be included in the material so we will be able to study it more leisurely?

PROFESSOR ANDREWS: I am leaving it behind, Mr. Chairman.

DR. BIRD: The purpose, of course, of this particular phase, as our Chairman has said, was to clarify matters in the EIS, rather than to present the technical arguments for them and, presumably, you would be able to come for Phase II and enter into a more useful kind of debate and discussion of these issues.

PROFESSOR ANDREWS: Yes, Mr. Chairman, this brief does in fact comment on the

technical factors in the EIS. The only thing I did not know until I heard the Chairman's remarks this evening, I did not precisely know what the scope of this panel would be. I was hearing it for the first time half an hour ago.

DR. BIRD: I hope it will be the same panel that will be sitting for Phase II. What I am not clear on, unfortunately, since I was trying to understand and interpret your remarks, I'm not sure that I understand where you stand on the issues as a whole. Is it fair to say that you find fault with so much of the technical detail in the EIS, in that particular section, that you are opposed to the project itself, to the development of the plant? Is it fair to say that your concerns with your past involvement in the assessment of disposal areas have produced in your mind a very great concern about the whole problem of waste disposal? Do you separate the two? Would it be possible for you to visualize and accept that the plant itself perhaps located on a different site might be allowed or might be acceptable, but that the waste disposal problems are so serious they have to be looked at separately? I am afraid I haven't got the synthesis out of your remarks.

PROFESSOR ANDREWS: Your synthesis

is entirely correct. Mr. Chairman, his synthesis is correct. Does Dr. Bird wish to continue with his comments and I could answer them all. Do you have further comment, Dr. Bird? Do you have a further comment? I got the impression that Dr. Bird was going to say something further and I was going to answer them.

DR. BIRD: I think I probably said as much as I can at this stage.

PROFESSOR ANDREWS: Well, Mr. Chairman, the question here is whether the plant is an unsafe plant. Looking at it from a sort of chemical engineering standpoint, I think the process has been fairly well planned. I have some experience on this as I helped to design a plant in Britain to make uranium hexafluoride 27 years ago. It seems to be a good process and a safe process. But, peculiarly, Mr. Chairman, because of the small holdup of activity, an accident is not -- maybe a chemical accident, a bad accident I don't think could be a radiation bad accident. Therefore, in some ways, I have no quarrel with the process, the chemical process. At this time, I wish to stay out of it, because I wish to confine myself to radiation problems.

I think one of the things about the plant is stack effluents, which are perhaps a little

bit questionable, because this is a special area. I think very great attention should be paid to stack effluents. I think something better might be done. I don't know, filtration and so on.

However, also, with regards to political and local aspects, I don't wish to put words into the mouths of the local workers. If the local workers want a chemical plant and so on, I believe, it is their prerogative. If the Town Council is in favour, it is their prerogative to vote in favour of the plant. What I am saying is that it would be unwise to combine the plant with the proposed waste disposal facility. The analysis carried out by those that prepared this report is very good, very searching and, in some ways, I would say it is very soundly based and, yet, it doesn't allow for the things which go wrong with this type of operation and that have been demonstrated to go wrong with operations like this, historically.

If your panel decided to take this whole thing in tow and put me in the nefarious position of having to say yes or no, I would have to say no, but I would see daylight in this respect, Mr. Chairman, that you don't have to have the plant with all the waste surrounding as it were, cocooned. You don't have to have it that way, so why should you?

What I do feel is that in my examination of the radiation aspects, it leads me to the conclusion that whatever else is decided -- and sometimes I don't think the plant chosen is the best site -- for instance, from the farmland point of view, well, I will keep those opinions to the side for a moment. Radiation wise I think it would be foolish to try to combine the two together, to lock them together, particularly in view of the findings of the latest report, which may motivate the government to do something about this very problem and find a place to put waste by people who are going to accept the responsibility.

DR. DEROW: I have several questions. I am very interested in your common sense aspects. Of course, the EIS process to a certain extent is to try and structure common sense and look at the whole process of decision-making.

I was particularly interested in your suggestion, I think it was your third aspect of common sense, to supply a buffer zone for animals and people. Could you clarify or elaborate a bit more on what you mean by a buffer zone? We have discussed this before.

PROFESSOR ANDREWS: Well, I proposed this to the Atomic Energy Control Board in 1966 in

conversations and in 1977 in writing. The idea behind this is to provide an area where the public can be protected from, for instance, the radiation levels. You see, there is always a trial zone in this type of operation where working radiation levels are within or below the 2.5 MilliRem per hour workers' alarm level. That is not a stop on the work. That is just an information level. Some people regard it and I have always regarded it as an alarm level, as a stop level. In the design of the British radiation plant, I was responsible for most of the radiation shielding in the early days of the Atomic Energy Authority in Britain and I did all the radiation safety and design for these plants. One thing I felt was this sort of limit is not really a limit unless you enforce it but the Atomic Energy Control Board regards this as an information limit. Whichever way it is regarded, I have always regarded it as a door through which the worker should not go. This is 2.5 MilliRem an hour and it applies to the worker.

The general public are conditioned to .06 MilliRem an hour and 06 multiplied by 8,750 makes 500 which is the workers' maximum dose -- I'm sorry, the general public's maximum dose. So, there is a gap here where man can have a falling radiation count off, for instance, and this area can still be used

but the public must be excluded, and non-occupationally exposed, that is non-atomic workers should not be operating in this area.

So, in other words, there is an interim area which is too hot for the general public but it is not too hot for the atomic worker and the question what to do with this. The answer is it can be used for many things, storage operations, operations which do not require full time attendance and so on. It is a buffer zone to sort of keep control of it and, in some ways, to protect the public. It also could be used to plant things on. The vegetation might hold down ground contamination.

The point is to get control of this and have a say as to what goes on inside it.

DR. DEROW: Did you mention how large a buffer zone you would suggest for this installation?

PROFESSOR ANDREWS: Could you repeat that?

DR. DEROW: Did you mention how large a buffer zone you would suggest for this installation?

PROFESSOR ANDREWS: Well, in some ways, this is not the same exposure problem as the previous Port Hope problem. You see, the previous Port Hope problem with AECB -- it was a question of divided responsibilities here. The waste left

Eldorado's door, and Eldorado presumably wrote them off and Eldorado disclaimed responsibility for them. Then they entered the twilight zone and they entered again a dump presumably for which AECB was responsible. You see, you can't find an owner. These radioactive wastes are orphans. You can't establish who their father is. Therefore, it is very difficult, but we know these exist in these dumps. You can take count and I have done this on a number of occasions and walk around the dump and measure one MilliRem an hour and that is the dose I am receiving, or it is the dose accorded by the meter. If I am being dosed, this is not permissible, so I reduce it to 06 by expanding the area and the particular buffer zone around it. That now complies with the law in this respect, that anybody can come to that fence and not get more than 5 MilliRem a year. In other words, nobody would be delivered a dose greater than they should be having.

DR. DEROW: You mentioned that the general public -- I may have the terminology wrong, but the exposure should be one-tenth that calculated for the worker.

PROFESSOR ANDREWS: No, it is not.

DR. DEROW: It is not? Didn't you say that?

PROFESSOR ANDREWS: Hold the line. You have to be very careful here. There are all sorts of things you can do with the worker but not the general public. The general public is inviolate. The general public is limited to 500 MilliRem a year. That is the basic criterion. But this is expected to be for total exposure. That is, 8,760 hours a year, therefore, you cannot give him more than 0.06 MilliRem an hour, because that multiplied by 8,760 makes it 500.

But the worker, you hire him for 40 hours a week so, you only hire him for one-quarter of full time, so automatically, you have to jack up his exposure by 4 times, everything else being in proportion. Also, on top of that, you are allowed to give him ten times more because he is a small population, he understands what you have proposed to him, that he should expose himself to radiation for money and he is prepared to chance that risk. But he, therefore, can be exposed by you to 40 times what you would dare expose the general public to. It is a ratio of 40, not ten.

MR. LANG: I only have a request, I guess, and that is that somewhere you provide, and perhaps you have already done this in your brief, some indication of those rather low probability

occurrences that might end up being really problematic for the area. Will you do this in your brief? Do you spell out some of the things that could happen that are not being considered in the EIS?

PROFESSOR ANDREWS: Yes, this is not a probability exercise. This is not like Erasmus. This is not a probability consequence calculation. It is an indication of some of the things which could happen and the fact these can happen and do happen is very well documented in the records of what has been going on in Port Hope.

The existence of all these hazards -- well, I think the whole point is you cannot rule out ridiculous things can happen, like trespassers will throw this stuff around, and someone will decide to locate there 50 years from now and build a basement and unearth radium just like that. All of these things you can't discount. You can't safeguard a site. Security, you must say, is a real problem. I won't say anything about hijacking. Nobody wants to hijack this stuff. People, you know when you bury somebody in a cemetary, you say give me fifty dollars and I will maintain this site to perpetuity, that means until they go bankrupt or something else. What is perpetuity? Even governments fall.

MR. LANG: I only asked you whether

you did describe these things?

PROFESSOR ANDREWS: Well, this is sort of a typical event. I have not done an analysis. I have just mentioned one or two things that could happen.

MR. LANG: It would be useful if you could spell out, since you are quite knowledgeable in this area, perhaps as an addendum to your brief in some more detail, some of the more far-out things that might happen, simply because I think you have a point in that 15 or 20 years ago anyone who suggested that people in Port Hope might build schools and houses and so on on top of radioactive waste would have been considered a nut. This is the kind of thing that I for one would like to know -- at least sketch out the landscape of the possibilities, if you could just list them.

PROFESSOR ANDREWS: I haven't made an exhaustive study of these possibilities, Mr. Chairman, but things come to mind, for instance, catastophic weather. I am not talking about earthquakes. Catastrophic events do occur and the place could be inundated and big washouts might occur and there may be explosives. I am not talking about meteorites.

MR. LANG: Well I am not talking about ---

PROFESSOR ANDREWS: Well, that is the sort of thing, Mr. Chairman.

DR. BIRD: One very brief question, Dr. Andrews. Are you satisfied that the 500 MilliRem per year to the public is an acceptable dose for the public?

PROFESSOR ANDREWS: Mr. Chairman, 5 MilliRem is quite satisfactory for a person, in my opinion, however, there is a very big proviso. Because the Atomic Energy Control Board for a number of years said this, people got the impression that -- and I won't mention any names -- I don't wish to raise this really, this particular evidence against any particular party -- but they got the impression that you could give a person -- it says "a" person in the Atomic Energy Control Act, or the regulations pertaining to the Act, but some people think there is no limit on the number of persons you took. Reducing it to its absurdities, you could then take, for instance, 20 million people in Canada and dump ten million runtin on them without breaking the law. Well, the answer is you can't and you shouldn't. The intention of that level was not to give count to anybody to dump ten million Rem on the people of Canada. No, indeed.

MR. CHENG: You mentioned that you

don't think that combining the waste ---

PROFESSOR ANDREWS: I'm sorry, I have a correction. I said ten million MilliRem. I meant ten million Rem. The secretary may have taken it down wrongly. It was my fault. The transcript should read ten million Rem, that is half a Rem for 20 million people. Is that correct? I did say inadvertently in my hurry to get closed MilliRem rather than Rem.

MR. CHENG: I am still on my original one question and that is you suggest, or you seem to suggest that combining the waste disposal and the refinery at the same location is not a very good idea. You also mentioned that you used to work in refining, in the industry in the United Kingdom.

PROFESSOR ANDREWS: Factory design.

MR. CHENG: All right. My question is now, in the current practice in Britain, what do they or what kind of practice do they use for the waste disposal of UF6 refining?

PROFESSOR ANDREWS: I am not an expert on this, Mr. Chairman. I feel I should not comment. If the panel wishes, I would secure for them the necessary documents, current documentation written by those people working on it. I have been

twenty years a professor at the University of Toronto and I follow the activities in Britain and also the lifetime of the storage plant, the radiation storage plant, the safety for which I was responsible, but I did not follow this in recent years. Therefore, I feel I should go to sources which are far more recent and reliable.

THE CHAIRMAN: I think it would be helpful for you to provide this.

PROFESSOR ANDREWS: If the panel requests this I would do that.

THE CHAIRMAN: Are there any questions from the floor? No further questions. All right, thank you.

MR. GRANT: Yes, please. Dr. Andrews, in response to a question from Dr. Bird you indicated that you find a number of faults in the Environmental Impact Statement in the radiological section in particular. My first question is just to satisfy myself, since you read so rapidly, that all of the questions which you have are specified in the written copy of the material that you left with the Chairman.

PROFESSOR ANDREWS: Yes. I wouldn't call them faults. I would call them comments to which I feel attention should be given. Those are areas which I think should be investigated. You

couldn't call it a fault when I calculate a ton of uranium has .8 Curies and you say it is .6 something Curies.

MR. GRANT: My concern is that we have all of your concerns.

PROFESSOR ANDREWS: That is correct.

MR. GRANT: My second question relates to the atomic workers. It is an actual question as to why atomic workers should have a higher permissible dose rate. Is it not true one of the factors in respect to atomic workers is that unlike the public they are subject to frequest or constant monitoring during the period of employment? Don't they wear little pins that record automatically?

PROFESSOR ANDREWS: Yes, Mr. Chairman, but information, being informed of the status doesn't necessarily control the state. It enables you to limit it but, if a worker is sick with radiation, whether you know it or not, he would be sick with radiation.

MR. GRANT: Is it likely he would be sick with radiation with the kind of minimal levels that are permissible?

PROFESSOR ANDREWS: The probability is small. You can't use the word likely. By likely, you mean high probability, I presume?

MR. GRANT: Are you aware of any worker having been sick with 500 MilliRem?

PROFESSOR ANDREWS: No, but you must be well aware, Mr. Chairman, if you take a large working population, for instance a number of workers doing work in a large project, where you could take enough workers to start some statistical research, I have no doubt in Canada, for example, and Dr. Bird would probably confirm, readings have been taken of a fairly large population of workers for a fairly long time and a worker can get 150 or 200 Rem a year, in a lifetime, and then they multiply that by a thousand workers and you have about 200,000 man Rem, to measure, as it were, to look at. Now, with that type of man Rem level, you might start thinking about looking at the differences in leukemia, whether this particular population has more leukemia than perhaps some other populations. Of course, medical control of measurement of plutonium and things like that is informative and it doesn't have any bearing on whether a man is going to have one in a million chance of lung cancer before he's 60 or one in a million chance of leukemia before he's 60, or one in 1.2 million. What is important is that you know what is going on and are able to limit this. I have done this in design. You do what is called a radiation walk. You walk around the

plant and if you don't like the number of Rem, the number of Rems you think you are going to get, then you redesign the plant so it gets less. In other words, it can all be done effectively with a view to limiting the daily dosage obtained by the worker. It should be zero. If you can make it zero, well, then let's make it zero.

MR. GRANT: So, if you have established minimum limits, do you feel the plant should be designed to meet that criteria?

PROFESSOR ANDREWS: I think this particular plant has been designed to meet these criteria. I don't think there is a radiation exposure problem. That is, if I have understood your question correctly. I don't think internally it is a problem at all. In the case of what happened in the Town of Port Hope, I guess an Eldorado worker was safer in the plant than in his house. In some cases you might have found that. I am not saying that the average worker -- you might be able to find a case of that if pressed.

MR. GRANT: You did mention in response to Mr. Cheng's question the UF6 plant you designed. My question is did you design the disposition of the waste, or how was the waste for that particular plant that you designed in fact

disposed of? When did that take place? How long ago?

PROFESSOR ANDREWS: Well, this was in 1950.

MR. GRANT: 1950?

PROFESSOR ANDREWS: 1950 or '51. As I say, this was a different kind of plant and it was all done by the design people. I worked with design teams on other things. Someone had to have the responsibility for the radiation, to coordinate the radiation design and radiation safety. That was my function.

MR. GRANT: So, you didn't design the entire UF6. Do you recall how they proposed or in fact dealt with the waste in that facility?

PROFESSOR ANDREWS: The UF6?

MR. GRANT: The UF6 plant?

PROFESSOR ANDREWS: Probably what I should do is put you in touch with the British people and send you some documentation that will answer your question rather than take up the time of the panel.

MR. GRANT: But my question was do you remember whether they put it in deep ditches or dumped it in the Irish Sea or do you just not know?

PROFESSOR ANDREWS: The stuff was put

in an exclusion area, concrete floor exclusion area in drums and was roped off and we said we will decide that later when we get through with Phase I. Then I moved on. But I know it was taken care of. This was an interim solution. You mean the final solution? I can get you documentation to show that.

MR. GRANT: But you don't know.

PROFESSOR ANDREWS: I am not going to say. There are people more competent than I, Mr. Chairman.

THE CHAIRMAN: Any questions from the floor? Brief ones I would have to ask at this time.

MR. BRUCE LAIRD: Dr. Andrews, my name is Bruce Laird and I represent ten citizens who own property immediately adjacent to the refinery. I am particularly interested in your figure of 0.06 MilliRem an hour or 500 per year. I would like to ask you -- you talked about a fence line. I am curious whether you formed an opinion as to where the fence line should be to achieve that level or that reading at the fence line. How far would the buffer zone extend out?

PROFESSOR ANDREWS: You mean the proposed new plant?

MR. LAIRD: Yes.

PROFESSOR ANDREWS: The answer is looking at the proposed exclusion area for the new

plant, it would be taken care of, but I don't know geographically where it would be.

MR. LAIRD: That is the thousand meter exclusionary area you are talking about?

PROFESSOR ANDREWS: Well, I drove around a similar site, but not the perimeter.

MR. LAIRD: Is that the thousand meter area?

PROFESSOR ANDREWS: Yes, whatever exclusion area is proposed, that exclusion area would be suitable for a radiation exposure exclusion area. It would be a proper perimeter.

MR. LAIRD: I am just a layman, Dr. Andrews, but I am curious to know how you arrive at 0.06 as a proper reading? I would think individuals that I represent would say that there shouldn't be any reading.

THE CHAIRMAN: Before Dr. Andrews answers that, I think he did that mathematically by going from 500 MilliRems per year down by dividing by age and so on and got 0.06 MilliRem per hour.

MR. LAIRD: I understand that, Mr. Chairman, but I'm just curious to know how you arrived at that as an acceptable level.

PROFESSOR ANDREWS: Well, the situation here, which I pointed out to a question

from Eldorado, the real thing is to make radiation zero if you can. This is the whole point. But that is the level above which you as a citizen would be able to go to law. Once it is established that the level is more than 0.06 MilliRem an hour, the citizen could invoke this section, and might win a case. Right now, you can't do a thing until it has been in the Supreme Court. But I get your point, the citizen, the general public should receive zero if at all possible. Zero is the level, as I think was mentioned to Eldorado in answer to the question. Zero is the desired level and 500 MilliRem is the legal level.

MR. LAIRD: Have you formed an opinion as to the buffer zone required to have 08?

PROFESSOR ANDREWS: Well, the situation here is the only way to have a zero reading is to have to plant. This is the situation. If you want a zero reading, if the panel decides that the zero reading has to be, then the plant will not be.

MR. GRANT: Just one question arising from that question. There is a natural background ingredient there, Dr. Andrews. Theoretically, it would probably not be possible without the plant to have a zero reading. Is that not true?

PROFESSOR ANDREWS: You can have a zero reading within the meaning of the Act, because the Act is really talking about background. Of course, the word about background is shot full of holes, Mr. Chairman, because how can you define background?

An occasion arose some time ago when I was trying to establish the background legally, the background in Port Hope with the Atomic Energy Control Board and they said, oh, well, we measured it at Cobourg. It is twice the normal, like 200 MilliRem a year, so you see we don't have to take it down to Port Hope and I said so you see the trick has gone as far as Cobourg. You see the point?

The implication was they didn't have -- there was a plane of activity, a plane of natural background which was twice the Canadian average, which happened to be along the coastline, and the government should not bother to clear below this level. My response, you see, is to try to take into account the two conclusions you can arrive at that either Port Hope was clean or it was contaminated. That is where we believed Port Hope was contaminated, but they tried to use Cobourg as a reference. All you can say right now is either Cobourg was clean or Cobourg was contaminated. That

is all you could say until you took the time to go out and measure it. But they haven't done this. They just jumped to a conclusion straight away. One can always jump to conclusions about what the natural background is. I think it is only fair to do a survey and the United States has done this and we should do it too in Canada. We should make a complete base line survey of natural background all over the country. It doesn't cost too much. The U.S. have done it and they have been reporting at recent conferences. I was at one in New York and one in Washington not too long ago when this was brought up. They have gone over every square inch of the United States and they can tell you what the natural background is in every town in the country, because people are in towns and so on and they know. We don't know yet and we should know in order to answer this type of question.

MR. PANTA: I would like to ask you a question, sir, as a layman. I have a family and I am scared like hell from this nuclear radiation. I don't know too much about it. I can't believe Eldorado Limited. I cannot believe the Atomic Energy Control Board any more. I cannot believe the federal or provincial agencies because they don't tell the truth to us.

I would like to ask you, sir, would you as a family man with children live close to the nuclear refinery? Is that safe for me and my children? Can I tell my son and daughter you and your generation will be okay to live on what we are living on here?

PROFESSOR ANDREWS: Well, Mr. Chairman, once again I think we will have to separate what we mean by refinery. People have been living in Port Hope with a refinery for some years. The fact that I mentioned 12 MilliRem an hour at the fence of the refinery seemed strange to me at one time, and I did take it up with the authorities in 1966 and they said, you don't have to worry, nobody sleeps there.

Yes, I am concerned about this. I do feel that an operation should take greater care as to what passes this fence. In other words, the general public did not ask to be radiated, and any plans to operate a radiation plant should be examined very carefully to make sure that nothing in the form of radiation is delivered to the residents.

I would comment also on one thing that the public should be better informed about radiation background. We get a peculiar situation arising in Toronto where if the real estate people

sell enough land to double the size of Toronto, instead of building another town of a million people or two million people in a radiation-free area, it will actually deliver to the people of Toronto about a 100,000 unwanted Rem a year. A very peculiar situation arises where people don't know about radiation. They don't realize that radiation in Toronto, for instance, is higher than the Canadian average. Building further habitations around this above average zone will expose the population at large to thousands of what one might call unnecessary Rem.

MR. LANG: I think the question could be answered with a yes or no. Yes or no or I don't know. Which one is it? He asked you whether you would live there?

PROFESSOR ANDREWS: No. Mr. Chairman, it cannot be answered in a simple yes or no. I can't answer in a simple yes or no until I know what kind of plant it is. You can't answer the question.

THE CHAIRMAN: We have kept you here for an hour and are there any more questions?

MR. DENNIS SADLER: I live in Bowmanville. Some time ago I read an article that people living near nuclear centres, I guess, and it seems that they absorb more than what we would be

likely to absorb, I guess it would be 1500 MilliRems a year and this would be natural background radiation. I was wondering what Dr. Andrews might have to say about that. It makes me think that possibly 500 MilliRems is very low because the article says that there have been no ill effects on these people.

PROFESSOR ANDREWS: Mr. Chairman, I think that several tests have been done over the last 20 years possibly on about 20,000 people and some of them have been getting up to 5 Rem a year. I suspect it is about 20,000 Rem per year, shall we say, additional radiation delivered to the people of that coast, this particular coastline. Some people might say that is under estimating, 30,000 or 40,000, but the answer is you have to set about conducting researches and and elaborate research to find out what that did. For instance, you can do sex ratios, expectation of life and look for little genetic things and incidences of leukemia and things like this. But, there is a problem here. We know that 20,000 Rem a year will deliver about 4 leukemia deaths extra per million per year. 20,000 Rem a year will deliver statistically, it is a probability, it will deliver about 4 leukemia deaths, whole body radiation exposure to radiation will deliver about 4, some may say it is 3. Someone may say I have seen

scientific evidence that it is 4-1/2. Okay. Let's estimate. Let's say it is 4.

Therefore, the extra leukemia deaths deposited, as it were, in these people is of the order of 4 per million. So, statistically it is practically impossible to determine it unless you follow for a whole lifetime. Then you might begin to see it. I don't know.

THE CHAIRMAN: Thank you. One last question.

A CITIZEN: I am a citizen here, and I got a little bit from you, Dr. Andrews. The panel has asked you to extend your brief to include likely catastrophic events that could happen if the plant and the refinery and dump are built. Could you possibly do this? Further could you expand your brief to include unlikely catastrophic events should the plant not be built?

PROFESSOR ANDREWS: Mr. Chairman, I would like to suggest, if anybody has any ideas, obviously there is a lot of catastrophism around. I am not a catastrophist by nature. There are people better equipped than I to say what sort of catastrophy is likely to strike in Port Granby in the next 10,000 years. I wonder if they would get in contact with me, company of the University of

Toronto, Department of Chemical Engineering, and possibly give me some guidance as to what sort of catastrophies could happen here in Port Hope and the Port Granby area. You have to live here to know the sort of catastrophy to which you are prone. I think if people had this sort of information, would they be kind enough to contact me at the University of Toronto and I might be able to coordinate this sort of stuff.

MR. SHIKAZE: I would like to try to solicit a yes or no answer from you following up from Mr. Panta's concern and that is, do you feel that the refinery, that the technology exists to design a refinery so we can allay concerns, the kind of concerns that Mr. Panta has and he can continue to live there?

PROFESSOR ANDREWS: Mr. Chairman, I take Mr. Shikaze's question as it was stated. I will live by a refinery and bring up my kids by a refinery, but as I said ten years ago, I wouldn't let them bathe on the beach in Port Hope. My statement is simply this. I will let them live by a refinery but I would not let them live beside a waste disposal area.

THE CHAIRMAN: I hope Dr. Andrews will be able to participate in the second phase of

these hearings also. I think it might be appropriate to take a quick coffee break right now for ten minutes.

--- Short recess

--- Upon resuming

THE CHAIRMAN: Ladies and gentlemen we have made some adjustments to our schedule. As I understand it the order of speakers is now starting with Garfield Payne, Mr. Kordas and Miss Kordas, Douglas Humphrey, Mrs. Q. Fletcher and Mr. D. Saunders of the Greenpeace Foundation, and then Joan Hayes, and Elizabeth Leventhal. That gives us eight to go this evening. Can we proceed with the first one, Mr. Garfield Payne.

SUBMISSION BY MR. GARFIELD PAYNE:

Mr. Chairman, I have a fairly simple brief or statement to present to this panel. I am not an expert. Perhaps I should read this and make clear who I am and what my qualifications are, if any. Before I state my concerns with the Port Granby project, as Eldorado Nuclear calls it, and attempt to identify areas for further study, I should introduce myself. I am Garfield Payne, a third-year law student as Osgoode Hall Law School in Toronto. When I am not in Toronto at law school, I live on the dairy farm owned by my parents close by the site of

the proposed UF6 refinery. My expertise in this matter is not high. Part of my undergraduate university education consisted of first and second year chemistry, physics, biology and ecology courses at the University of Toronto.

At this stage of my investigation of this project, I am not prepared to say that Eldorad has met its burden of proving that this project is necessary, safe and in the best interests of this community, or alternatively that there is some compelling national interest which would allow a project of this type to be imposed on a community without its consent.

On the issue of necessity I raise for your consideration the balance between the environmental and social costs associated with the production and refining for export of uranium hexafluoride, a concentrated energy source, and on the other hand the employment, income and possibly technological developments associated with this project. I believe the panel should seek to ensure that this cost benefit calculation works in as many of the social and environmental costs as possible. As I understand it this proposed refinery will produce UF6 for export to countries with light water reactors. Essentially, Canada will be a

source of supply for fuel to a competing technology, competing with the CANDU heavy water reactors which Canada has exported.

I would also raise for your consideration the question whether future Canadian energy requirements would not mean that the uranium we are exporting in the UF6 form might be required in the future, and by that I mean 20 or 30 or 40 years from now, domestically. It certainly seems plain that Ontario Hydro and other Canadian electric utilities are committed to the nuclear option.

The possibility also exists that Australian uranium exporters may make this UF6 refinery uneconomical by competitive pricing now that their export ban has been lifted and the uranium producers cartel to which Eldorado Nuclear belongs is being called into question.

There is one method of assessment which I do not believe Eldorado used in these Environmental Impact Statement books to determine the necessity or at least the economic viability of the proposed refinery, and that is the Net Energy Budget as proposed by ODUM and others. The introduction to the Environmental Impact Statement guidelines encouraged the use of alternative forms of evaluation and I believe that were the energy costs of

construction and operation of this plant evaluated in this way, it might become apparent that the decision to build this plant and to put it on this site may not have been the best one from the point of view of energy consumption.

If it is determined that the construction of a uranium hexafluoride refinery is in the public interest, we must then ask why build on the Port Granby site? I understand that Eldorado plans to expand its uranium hexaflupride refining capacity in Saskatchewan. If the economic health of the region where the refinery used to be built and the need to create jobs are important factors, perhaps thought should be given to adding the capacity in Saskatchewan. This consideration may be beyond Eldorado, though as a Crown Corporation, I would hope that it had a mandate to do something more than the ordinary business motive of turning a profit.

Eldorado has stated in its preference for Port Granby because it is close to both the Port Hope plant and what is euphemistically called the "Port Granby Waste Disposal Facility". It seems quite true that this would be an easier solution for them. My question is why they insist on it when they also acknowledge at page 6-2 of the Environmental

Impact Statement that the growth strategies for both the Durham Region and Northumberland County permit a rapid development of urban areas, but at the same time they restrict the urbanization of rural areas. Immediately to the east of the proposed site there is a classic example of urbanization of a rural area. The Eldorado proposal is to locate the refinery on what is quite decent farm land, in effect, to encourage the urbanization of rural land by bringing in the service infrastructure required for the plant. Why would it not have been a more sensible proposal to put the refinery in an industrial park in Durham or Northumberland where the services were already in place and the risk of urbanization of rural lands non-existent.

This concludes my opinions as to the necessity for a plant, the necessity to have it in Ontario and the necessity to have it on the Port Granby site. I would suggest that these questions be the subject of later hearings by this panel.

With respect to safety, my view on this fundamental consideration is that the onus on Eldorado is a very heavy one. The past conduct of this company is such as to justify the view that as little as possible of the control over safety should

be left in its hands or that of its captive regulatory agency, the Atomic Energy Control Board. What is particularly objectionable about the Eldorado proposal to establish a waste management site on the proposed refinery site is that the soil and ground water of the site will inevitably be contaminated by the solid sludge from the plant processes. I do not know what the economic lifetime of the refinery will be, but it is for certain that the site will never again be agricultural land if the wastes are to stay in the bentonite or the plastic containers or whatever.

I am not able to evaluate the radioactive tracer study results, so I cannot dispute the migration rate of the buried materials. I do, however, draw it to the panel's attention as demanding further study.

As far as the other waste streams from the plant, i.e., air and water borne, I am concerned about the potential for bio-magnification of radioactive and other heavy metal contaminants which leave the property and enter the food chain.

My third section relates to the public interest and the best interests of this community. To a large extent I have covered this in my first discussion on the necessity for this plant

in this specific location. I would just like to repeat my request that the panel attempt to incorporate into its cost benefit calculation as many of the social and environmental costs as possible. I would also like to see the panel make an effort to ensure that the costs of various facets of the service infrastructure provision are not shifted to the municipality or persons other than the applicant, Eldorado Nuclear, with costs being interpreted in the widest sense. That is my statement, my feelings on the matter and I am open to questions.

THE CHAIRMAN: Any questions from the panel?

MR. GRANT: Where is your farm, Mr. Payne, or your parent's farm?

MR. PAYNE: My parents have three farms. One is on the north side of the CP, CN tracks, directly north of the Moore farm. One is in Hope Township and one is north of Newtonville.

MR. GRANT: What is your father's name?

MR. PAYNE: It is Murray.

MR. GRANT: Did your father sell to us part of his property?

MR. PAYNE: Yes, he did.

MR. GRANT: I was interested in what

you said about Eldorado having a captive regulatory body, AECB. What do you mean by that?

MR. PAYNE: Well, what I mean by that is the meaning that has been given to it by such writers as MacDougall and others, talking about the National Energy Board, in particular there is such a close interrelationship between the industry and the agency that is regulating it, that they have merged -- and there may in fact be a distinction between them -- but for all intents and purposes, they seem to be the same entity.

--- Applause

MR. GRANT: You are suggesting that the Atomic Energy Control Board and Eldorado are the same entity?

MR. PAYNE: No, I am suggesting there is such a close degree of cooperation, collusion.

MR. GRANT: Collusion?

MR. PAYNE: Cooperation or collusion, I am not sure which word you prefer.

MR. GRANT: Well, you are a law student. Perhaps you might know the significance of the words you are using.

THE CHAIRMAN: I think he has made his point.

MR. GRANT: I don't think he has,

Mr. Chairman, with respect. If what he is doing is bringing into disrespect the integrity of the Atomic Energy Control Board, I would like to know that and I think you would like to know that and I think you should know that.

THE CHAIRMAN: I think he has made his point and we don't need to get into a debate on this statement. It is clear enough to us. It is up to us to decide how to weight it. Have you any more questions, Mr. Grant?

MR. GRANT: No.

THE CHAIRMAN: Any questions from the floor?

MR. LAIRD: Mr. Payne, you spoke of urban growth east of the refinery site. Could you just elaborate on that?

MR. PAYNE: Well, what I meant was the -- I am not sure how many houses there are -- as a result of the development on the hill immediately east of the project. If you notice, when you drive around the lakeshore road there are a considerable number of new houses in that area.

MR. LAIRD: Could you estimate how many houses there are?

MR. PAYNE: Perhaps 20.

MR. LAIRD: And how far from the

Eldorado property would those houses be at this time?

MR. PAYNE: Some of them are immediately opposite. Some are perhaps, they range from, I would say 500 yards to about a mile away from them on the Lakeshore Road. Some extend up the boundary line between Hope and Clark Townships.

MR. LAIRD: These houses are part of the Hewey subdivision?

MR. PAYNE: I am not sure who owned the land before it was divided up, before it was subdivided, that is, I couldn't testify as to who owned the land before.

MR. LAIRD: There is a substantial number of houses in a partially built subdivision immediately to the east of the property?

MR. PAYNE: Yes, as I understand it.

THE CHAIRMAN: No further questions, thank you.

Miss Marie Kordas?

MS. MARIE KORDAS: My name is Marie Kordas. I am the daughter of Mr. Jacob Kordas who happens to own land right next or very close to the proposed development site of the Eldorado plant. I live on this farm during the summer and most weekends, although I am a teacher in Toronto, because I teach for the Metropolitan Toronto Separate School

Board. Mr. Chairman, I am about to begin a letter. This was actually a letter written, so it may sound very much like a letter.

"Dear Mr. Klenavig: I am quite shocked to hear about the extent of proposals of Eldorado Nuclear Limited. Is this beautiful farmland to be scarred by radioactive land, air, and water?

"The Lake Ontario shoreline is constantly increasing in population growth. The Port Granby Region is not some far off dump site that affects no one. I have lived on my father's farm for about 25 years helping in the summers with the market gardening and beef cattle in winter. I know the area has many adults, children, animals and plant crops to be affected.

"I am presently employed as a teacher in Toronto, but I am still very interested in this region and eventually want to live here full time again. When I went to the Regional Office in Hampton I was informed that

"my father's land and surroundings have been designated as 'agricultural reserve'. I had been interested in building a new home but was informed that in this agricultural area I could not just take a few acres for a home. If Newcastle Region is concerned with preserving farmland, why is it allowing Eldorado to invade with its plans of contaminating our environment? "I don't really believe it's going to benefit the Newcastle Region. It, Eldorado, may only require the employment of a few highly skilled and trained engineers. This will not necessarily bring any employment to this region. As a matter of fact, it may lead to migration of local residents from a radioactive environment. Let's stop the uranium refinery. Yours truly, Marie Kordas."

THE CHAIRMAN: Thank you, Miss Kordas. I have one question. Your closing sentence mentioned the refinery. Is there a difference between the refinery and the waste management area in your letter? I didn't take complete notes of it?

MISS KORDAS: Well, I actually meant to protest any activity that would come in by Eldorado, either a refinery or this waste dump area.

MR. SHIKAZE: What about any other industrial establishment?

MISS KORDAS: Well, as far as I'm concerned, I really would like to protect the farmland as much as possible because, let's face it, so much of Ontario or the Lake Ontario shoreland has already been gobbled up by industry. Why take up more for whatever industrial purpose?

MR. CHENG: You said you lived very close to the project site. How close are you, right on the border?

MISS KORDAS: Well, actually if anyone has studied the topographical map that has been made, my father's farm is located right, I would say, within a kilometer of what land is now owned by Eldorado, although this may not necessarily be within one kilometer of where the proposed refinery would be. I am sure you could, going back to the linear measurement, go about a mile or a mile and a half.

MR. GRANT: Is that north, east, west or what?

MISS KORDAS: This would be east, directly west.

MR. GRANT: West of the property?

MISS KORDAS: Yes.

MR. GRANT: So it would be a mile or a kilometer east of Port Granby?

MISS KORDAS: No, Port Granby, it would be east of the old tobacco farm that once stood there.

THE CHAIRMAN: Excuse me, people claim it is west and some claim it is east.

MISS KORDAS: I am referring to Eldorado being east of us.

THE CHAIRMAN: And you live west of them?

MISS KORDAS: Yes.

MR. GRANT: How far west of Port Granby?

MISS KORDAS: As far as Port Granby, we live about a quarter of a mile up the hill.

MR. GRANT: West of Port Granby?

MISS KORDAS: Yes.

DR. BIRD: Miss Kordas, I wonder what your views are about the existing radioactive waste disposal area and its long term future, if in fact, no plan goes ahead?

MISS KORDAS: I have personally been quite concerned about the fact that there had been a

waste dump area there for years, except that no one seemed to protest it for so long, until suddenly now, since more industry, a refinery has been proposed there, and in the refinery or enlargement of a dump site brought it to more public view. But a great deal of my life I wonder how this might have changed my body genes, my potential to have children who will be perfectly healthy, or my grandchildren to be healthy. I don't know how much radiation I have accumulated over some 25 years. I lived approximately next door. I have yet to go and have a radioactive test. I don't know how healthy I am.

DR. BIRD: You look pretty healthy to me. Do you have some reason to believe that your health may be affected other than the general publicity?

MISS KORDAS: I wouldn't really want to tell you. I wouldn't want to be quoted in court, but I know animals that have wandered into the area about five years ago and died as a result of some contamination. Now, I happen to have been a long time lakeside wanderer. I like to walk along the lakeshore and many times I have walked right up to the old fence line where Eldorado would say do not go beyond this point. I have spent a good deal of my young life walking along the shore and the area and

being, say, within a mile west of this site now. It is going to increase.

DR. BIRD: Do you think something should be done with that area if, in fact, the plan does not go ahead, but there is still the area there, that dump is there. What do you think should be done about that?

MISS KORDAS: If it would be at all possible, to clean it up. I don't know if this would be the Port Hope story all over again, but personally, I would just turn the present -- well it has been removed out of the farmlands, and the land directly into Eldorado that has been owned for the last 25 or 27 years is too contaminated for agricultural purposes. We could just leave it as a green park zone. I don't know what you could do with it. I really don't know the extent of the radioactivity on that site now.

THE CHAIRMAN: Any further questions from the floor? Thank you, Miss Kordas.

Could you clarify, is it your sister or someone else who is also to speak this evening?

MISS KORDAS: My sister will be speaking for my father, Mr. Jacob Kordas. His English is rather limited. She has translated the letter for him and will be reading it. I think he will

be coming up, but personally, I think you could direct questions to her. She is Mrs. Humphrey.

THE CHAIRMAN: Okay. Mrs. Humphrey is our next speaker.

SUBMISSION BY MRS. HUMPHREY:

Mr. Chairman, members of the panel, ladies and gentlemen. My name is Barbara Humphrey and this is my dad, Jacob Kordas. As my sister has said, we wrote letters. We didn't realize exactly what these hearings were going to be like, so as my sister explained, I will read this letter which are the words of my dad, translated into English.

> "Dear Mr. Klenavig: I wish to voice my opposition to a new uranium refinery in the Port Granby Region. My wife and I have been involved in farming for over 25 years within a mile of the proposed site. We have managed to make a fair income from market gardening and beef cattle. For over 25 years I have helped to feed Southern Ontario through the sale of onions, tomatoes, cucumbers, peppers and beef. Many people are talking about the increasing destruction of good farm land in Ontario and all of Canada

"for that matter. Although Eldorado may not be building directly on my land, who can guarantee that my products will not be dangerously contaminated with radioactive waste particles coming from my eastern neighbourhood? Can air, water and soil contamination be checked and stopped before they reach the border of my farm in case of an accident? If my land is found to be high in radioactivity as a result of Eldorado being allowed to build this uranium refinery, who will compensate me for my losses in land value, not to speak of my annual income? Am I to be a victim of fate?

"You may say that because I cannot speak English, I do not fully understand Eldorado's project and have been frightened. I do not have to understand all that much to know that three good farms, one tobacco, and two dairy farms, have been taken over by an industry that no longer is agriculture. People, please get a hold of yourselves and think! Ontario's

"farmland is limited to the southern part. Why not go up north or where there is no people, livestock and farming? It may cost you a lot more to build your refinery up there, but billions and billions of dollars cannot buy farmland for me or any other farmer that will produce vegetables, beef or dairy products on rocks and in a short growing season.

"Certainly, the Newcastle Region should be concerned with the preservation of good farmland. Uranium is certainly not going to feed us, it will only stuff some already fat wallets. I don't believe that this new refinery will be any answer to local unemployment, as Eldorado probably has a few highly trained and specialized employees for the jobs.

"Please let us not open up doors to what will be irreversible environmental and social consequences. Yours truly, Jacob Kordas."

THE CHAIRMAN: Thank you, Mrs. Humphrey. Any questions from the panel? Any

questions from the floor? Thank you very much to you and your father.

The next speaker I have on the list is Douglas Humphrey.

SUBMISSION BY MR. DOUGLAS HUMPHREY:

I guess we are getting this down to kind of a personal level right from the sophistication.

Mr. Chairman, and panel members, I would just like, as I say, keep it more personal and try to tell you our own feelings.

My wife and I have recently built a new house on the second farm west of the Eldorado property. We are both involved in farming vegetable cash crops on my in-laws' farm and had always hoped to live a quiet farm life.

We are naturally not in favour of Eldorado constructing a nuclear refinery at Port Granby and we are also not in favour of the continued use of the existing dump. There are too many points which Eldorado has not satisfied or sold me on.

Eldorado has certainly painted a pretty picture with their glossy pamphlets and air conditioned information booths. Here we are, a group of local residents, trying to stop a million dollar propaganda campaign. We can't afford to hire

scientists, lawyers, engineers, physicists et cetera to tell our truths. Eldorado talks about bentonite layers, absorber stacks, multisort diffusers, et cetera, to keep pollution under control. This sounds very impressive, but it is not foolproof. What happens when we get excessive rainfall such as this year? What happens if we get strong winds, even a hurricane. What happens when the lake currents change or when there is a temporary mechanical breakdown in one of the pollution controls? Things that are unforeseeable cannot be included you might say. Sure, we all understand that nothing is 100 per cent safe and secure, but when we are talking about an industry such as nuclear refining, the if's can produce catastrophic situations in the proposed area beside the lake.

We are not talking about just one type of pollution, but many types, soil, water, and air. With Eldorado's large ads in the local newspapers, in regards to pollutants from the refinery, they stated themselves amounts of radium, uranium, nitrates, arsenic et cetera were escaping and are entering Lake Ontario.

On page 7 of the EIS folder, they say "Although a process upset in the refinery is considered a highly unlikely event because of the

plant's design, it nevertheless could occur and some contaminants may reach the lake. Chief among them would be uranium and nitrates."

Eldorado is stating themselves that they do pollute to some extent, but pollutants can accumulate to unsafe levels after years of operation, even in a large lake such as Lake Ontario.

With great reluctance, I can accept the fact that nuclear power plants are with us in this era. The fact that they are one of the dirtiest forms of pollution in the power producing industries, plus the fact that they use extravagant amounts of other power resources, e.g., hydro and oil for production, cannot be overlooked. To top this off, the product UF6 will not be for our energy reserve and we will be left with all the shit.

And what is Eldorado's answer to the use of prime agricultural land? How do they rate to be allowed to build industrially in an area zoned agriculture? Do municipal by-laws and land zoning not apply to everyone? Their industry is the furthest possible from agriculture and, in fact, they have stated themselves that "an effect of low level air contamination which is not readily observable, may be a slight reduction in the growth of trees", page 8 of the EIS pamphlet. What effect

will their "low level air contamination" have on my crops such as tomatoes, peppers, onions et cetera which are a lot more sensitive than trees?

I make my living from farming which is generally a healthy atmosphere. There are enough difficulties in farming such as weather, bacterial and fungal diseases, without having to cope with pollutants at close proximity from a nuclear refinery. Why the hell doesn't Eldorado build up north where agriculture isn't possible? Do you realize that if Eldorado goes ahead, probably the surrounding farms will sell out to other industries and then our intelligent government should be very happy that they have screwed up most of the farmable lake frontage from Cobourg to Niagara Falls. Who wants to farm near a nuclear refinery? I don't want to look out over my crops and see smoke stacks, cement structures and noisy trucks.

At the turn of the century when your bellies are aching from hunger remember how valuable Canadian farmland was destroyed to supply the nuclear needs of other countries. What happens to Port Granby when the plant ceases to operate? Let me read you the side note on page 5 of the Environmental Impact Statement:

"Decommissioning the Site: For

"planning purposes the life time of the proposed Port Granby refinery is assumed to be 15 years. However, the life of the facilities could reasonably be regarded as 30 years or more, depending on what happens in the future to markets for refined uranium products. Either technological or market developments could make it economically advantageous for Eldorado Nuclear to modify the refinery processes or rehabilitate some or all of the plant. When the time comes to stop using the plant, it would be dismantled. All structural materials - buildings and the tank farm - and all equipment used in the refining circuits would be measured for residual radioactivity and would be decontaminated, if necessary. In the event that some pieces of equipment - for example, flame reactors and ash handling equipment - could not be completely decontaminated by methods existing at that time, they would be buried in the waste management area.

"In the very unlikely event that all building materials and equipment would have to be buried, a three-acre section of the waste management site has been set aside for that purpose. Once stripped of all such materials, the original plant site could be returned to unrestricted use."

Does this mean that Port Granby, the refinery will become too hot, too high in radioactivity? I saw a film about one year ago where nuclear stations, after a certain number of years, became too high in radioactivity that they had to be closed down. Are ugly and very dangerous hot spots to scar our countryside? Will Port Granby be one of these or help to produce the product that makes these hot scrapyards? When will the decommissioning occur? It could be within a few years after operation that a new discovery is made in "either technological or market developments". Eldorado will close down the plant leaving behind a helluva mess! Our once agricultural and clear land will be left with buried contaminated junk. This land will not be as easily returned to farming as once our forefathers cleared land of trees and drained swamps.

It makes me laugh and cry at the same

time that Eldorado would even suggest the decommissioned site for recreational use. I guess if such a thing occurred, there would be signs such as SIT IN THIS ATTRACTIVELY CONTOURED GREEN BELT AREA FOR ONLY ONE HALF HOUR INTERVALS. POSSIBLE LONG EXPOSURE TO BURIED RADIOACTIVE WASTE COULD BE UNHEALTHY. Or, DON'T LET YOUR CHILDREN DIG IN THE SAND TOO DEEP.

Knowing Eldorado's history, they may not put up any signs.

Is the dismantling and burying process a usual indication of a safe industry once it has finished producing?

In closing, I would like to state my feelings on the decision-making process. Is everyone involved being democratic or has the final decision been made already in higher political hands? Are these hearings performed only to satisfy the local emotional residents and are we only puppets in a play?

Although I have faith in the expertise, intelligence and conscienciousness incorporated in this panel, I just hope that the final decision will not be purely political.

THE CHAIRMAN: Thank you. Are there any questions from the panel?

DR. BIRD: Mr. Humphrey, I think you

made a very useful statement which we all want to give very careful consideration to. I hope we will be seen in your eyes to measure up to your statement about the qualifications for this panel.

In the meantime, however, I wonder if I could try to determine more clearly your personal views on two or three related issues. I think you have touched on all of them. I sense that you have a concern about the refinery per se because it is being designed to manufacture a product for the export market, in other words, for foreign countries' use.

MR. HUMPHREY: Strictly for export, I understand.

DR. BIRD: Yes. I also have the feeling that part of your concern was for the adverse consequences to your particular farm from the operation of the plant, aside from the situation of the product being exported, and thirdly, I sense that you have some apprehension, considerable apprehension about the long term consequences of the waste disposal area. I wonder if we could divide these things into separate issues and try to see just the full range of your concerns.

For example, let us suppose that the plant wasn't being built and wasn't being proposed for

the Port Granby area at all, but in some remote part of Ontario. How strongly would you feel then about the fact that a Canadian government enterprise and at considerable expense was being planned to process Canadian uranium materials for the benefit of energy needs in other countries?

MR. HUMPHREY: On the same site?

DR. BIRD: No, in some other site well away from here, somewhere else in Canada.

MR. HUMPHREY: On the PreCambrian Shield?

DR. BIRD: Does it matter to you at this stage? I am trying to identify your concern about the utilization, about Canadian natural resources to meet a foreign government energy need. Would that bother you, would you be happy enough to see our refinery built somewhere else to supply the foreign market?

MR. HUMPHREY: I think eventually we are going to need our own energy resources.

DR. BIRD: There have been some figures tables before us and for all members of the public indicating that the uranium supply situation in Canada is such that in the minds of those people preparing that information, there would be ample supply to meet Canadian needs as well as to supply

foreign markets.

MR. HUMPHREY: For how many years?

DR. BIRD: Well, with the projections, if I recall, they were up to 1990 or the year 2000.

MR. HUMPHREY: I don't know how that is relevant at all.

DR. BIRD: I am trying to identify, because you raised it, and one of the concerns I am trying to identify is the amount of that concern. You referred to that factor. Is it a factor or is it something that you would prefer that we not go ahead with an industry for that purpose at all. Is that what you are saying?

MR. HUMPHREY: I didn't really consider that.

DR. BIRD: Okay.

MR. HUMPHREY: I think if we could look after our own needs -- you are suggesting an industry strictly for export?

DR. BIRD: Well, that is what this plant is being designed for at this stage. That is the statement we have been hearing, to produce UF6, and since Canada doesn't use UF6, it is there clearly for foreign purposes.

MR. HUMPHREY: I understand that the exports go wherever Eldorado's customer directs it.

DR. BIRD: Yes, through a processing plant, fuel fabrication plant.

MR. HUMPHREY: No matter whether it is a developed country or an undeveloped country.

DR. BIRD: The fuel finally produced could end up, as I understand it, in any country of the developed or undeveloped world outside Canada.

MR. HUMPHREY: That is the unwise part of it, I feel.

DR. BIRD: You would then be opposed to a plant anywhere?

MR. HUMPHREY: Basically, yes.

DR. BIRD: That is the point I am trying to identify. That is one point. Now, if we come back, well, perhaps that discounts all the rest, because if you do not want to see a uranium refinery built anywhere in Canada, you don't want one in Port Granby.

Let's jump to the waste disposal site. In that case there won't be new wastes being added, because there is no plant being developed, but there is already on the Port Granby area a licenced waste disposal facility. What do you think should be done about that? That is there now.

MR. HUMPHREY: Probably what they should have done with it in the first place. Put it

back in the empty mines that they took it out of.

DR. BIRD: You think it should be removed from the area?

MR. HUMPHREY: Certainly.

DR. BIRD: I have one more question. That whole area is identified pretty broadly these days as special study area number 12. We have heard a lot of that in the Durham Regional Plan. If Eldorado does not proceed with any plant on that site, then the question has to be faced as to what to do with it. Have you some solution as to whether it should be returned solely for agricultural purposes or held for recreational purposes or allowed to be used for other industrial purposes?

MR. HUMPHREY: Well, first of all, the land that is the present dump site or the whole area ---

DR. BIRD: I am talking about the whole area, the whole area now controlled by Eldorado.

MR. HUMPHREY: It should have never been taken out of agricultural use to start with. (Applause) I think the whole crux of the matter goes back to the people who sold the land to Eldorado. They should never have sold because we wouldn't be in this problem right now.

Secondly, it should never go into

industrial use. When I was young, I used to live in Hamilton on the lake front. Dofasco bought our house along with hundreds of others and expanded all along the lake front. We moved near Brantford and industry was spreading there and they bought out farmland there. Up there wasn't good farmland. But where I previously lived was residential, but it is still a dirty mess all the way from Niagara Falls to Cobourg. I have never taken a helicopter flight from Niagara Falls to Cobourg, but it is such a bloody mess, especially Hamilton, Toronto and even getting into Oshawa. There are industries all along the lake front and that is the best land in the country.

If they developed the northern land with all these industries, then they could have their cities up there and leave the farmland to the farmers. They come along, especially our government who is the main fault, because they offer outrageous prices just to procure the land, because they feel that it is a desired site and an opportune site.

DR. BIRD: Your basic concern is that the land be returned to agricultural purposes?

MR. HUMPHREY: Certainly.

DR. DEROW: I appreciate your concern in bringing the issues down to a personal level and describing your lifestyle and in pursuing that, I

would like to bring it down to a personal level. I have great trouble growing tomatoes and I was wondering if you could find out what effects would happen on your crops. In other words, you took this summary, the tree growth, and you say what is going to happen to the tomatoes. How would you find out? How would you test this?

MR. HUMPHREY: You don't even have to go as far as nuclear pollution. When the bloody trucks used to drive down the road and make all the dust, that does enough damage to the tomatoes.

DR. DEROW: I was wondering how you could document this in some fashion for this panel, the fact that you are having these problems or you could potentially have even greater problems.

MR. HUMPHREY: I don't know whether it is the Department of Agriculture in Canada who would have any documentation or not, but the sensitivity of these, like you know, in that region, there are two main vegetable farms. There's Tisnovsky who spoke last night and we produce basically the same crops, both beef and mainly the vegetables that are so sensitive to anything that it is really going to cost us our living.

DR. DEROW: I was just wondering how we could find out a little more about this?

MR. HUMPHREY: I would think Agriculture Canada in Ottawa would have, if anyone was going to have any documentation, they would.

DR. DEROW: Thank you very much.

MR. LANG: I would like to ask a question, not of you, but of one of the Ministry of the Environment people. I notice in the pollutants that you monitor, at least the ones that I see there, I get the impression that the selection of the foods monitored is based on what might harm the human condition. Do you monitor any pollutant in this area that might have detrimental effect on vegetation?

MRS. THORPE: Yes, we do. Yes, we do. We have a toxicological monitoring.

MR. LANG: What does that involve?

MRS. THORPE: I was just going to explain it. There was sensitivity, especially sensitivity of plants to fluoride. Plants are more sensitive to fluorides than humans or animals are, so, the Ministry of the Environment monitors fluorides using plants and the results on the species used were given in the summary that I gave the panel today.

MR. LANG: You don't monitor sulphates?

MRS. THORPE: Yes, we do, but we don't use the plants to monitor them. The standards that are set for air are set for whatever is the most sensitive organism. In the case of fluorides, plants were more sensitive organisms. So, we actually used plants to monitor the effects. In the case of sulphates, the standards might be set for plants or humans. I am not an expert on that situation. They use a chemical method for sulphates, but the acceptable standard is based on the most sensitive organism.

In the case of fluorides, the most sensitive technique is actually using plants. So we use plants and it is backed up by chemical measurements as well.

MR. LANG: Where are the standards, again, which you compare the data with? Are they based on what plants can stand or what humans can stand?

MRS. THORPE: They are based on what is most sensitive, for example, the thing that is most sensitive to fluorides is plants. They use plants to set the standards. For other things such as in the case of -- I can't think of another example -- but say sulphates, if animals were more sensitive or humans were more sensitive than plants, then the

standard would be based on the sensitivity of the human or the animal. So, the sensitivity is the standard based on the more sensitive organism. It is not always man, plant or animal, whichever is the most sensitive.

MR. LANG: Thank you.

THE CHAIRMAN: Any further questions of Mr. Humphrey? Mr. Grant?

MR. GRANT: Mr. Humphrey, you were referring to trucks going down the road by your farm. Are you suggesting those are Eldorado trucks?

MR. HUMPHREY: No, I made no implication of that. I am just saying that ordinary trucks and cars that go down there and create dust, this enough to cause harm to the plants.

MR. PAUL MILLER: My name is Paul Miller and I live in Budeley, Ontario, a local resident of 20 years. Mr. Humphrey, you made a statement that nuclear energy is the dirtiest form of pollution. Where did you read that?

MR. HUMPHREY: I don't know if I heard it or read it, but I believe it is true.

MR. MILLER: It is a total lie. It is the cleanest form of energy.

THE CHAIRMAN: Before we get into a debate, we want to hear the concerns of Mr. Humphrey

and you are scheduled to speak later this evening. I am sure we will all be interested in what you have to say. Are there any further questions?

Next I have Mr. Alexander Karkliss.

SUBMISSION BY MR. KARKLISS:

My name is Alexander Karkliss. I reside two miles north of the proposed land. At this point I don't have anything more to add other than to express the concern of the previous speaker, especially the waste disposal so close to the main water source for the millions of people.

THE CHAIRMAN: Thank you. Any questions? I think you probably set a record for the shortest presentation, but it is appreciated. Maybe you could comment on the waste disposal. Could you elaborate on that area? I gather you don't want a nuclear plant there or a nuclear refining plant. Is there anything else you would see there? Such as a housing development?

MR. KARKLISS: Well, there is always an existing danger in the seepage of chemical wastes and nuclear wastes into the lake as it proved before. So we don't have any guarantees that the new system will be more efficient.

THE CHAIRMAN: Any other questions? Any questions from the audience? Thank you, Mr.

Karkliss.

Our next speaker is Mrs. Q. Fletcher.

SUBMISSION BY MRS. Q. FLETCHER:

The lighting in here isn't very good, Mr. Chairman, and also the sound.

THE CHAIRMAN: I agree. I think you would be better if you sat closer to the microphone so we can hear.

MRS. FLETCHER: I am not used to this. I don't know if my voice -- I have never done this before. How is that?

Mr. Chairman, members of the panel, ladies and gentlemen. I want to tell you first of all my name is Queenie Fletcher. I am retired. I am 75 and I live in Newtonville. I just have a few things I would like to say. And I am nervous.

Having lived in the Village of Newtonville for the past six years, I have come to enjoy the quietness and beauty of the rural surrounding area. Naturally I heard and read much about a plant called Eldorado situated in Port Hope 15 or so miles from my home. I heard much talk of radium, how homes and schools were being closed because of the possibility of the effects on those with whom it came in contact. A group of people had organized themselves to protest against the proposed building

of an oil refinery and dumpage of waste material at their Port Granby site. SEAP was the name under which this group had formed, Save the Environment From Atomic Pollution. They held meetings in the local school and I attended several of these. I felt that they deserve much credit for the stand they had taken, their research and the many, many hours of their time that they had freely given to the subject and for arranging to have well informed speakers address the meetings and answer questions.

At a workship meeting a film was shown about how waste from nuclear plants are disposed of. We didn't have to be told how dangerous these wastes were when we saw the elaborate precautions taken to protect workers handling this, preparatory to dumping it in abandoned mines. The whole effect was that we were afraid of what might happen here in Newtonville if such things were dumped in this locale.

We also know how important electricity is to all of us in our daily lives. We would be at a standstill. The implications of its non-use are absolutely beyond our imagination, but there must be alternatives and surely, the government is in too big of a hurry.

Take the Darlington case, for

instance. The Ontario Hydro's nuclear plant was approved long before any environmental hearings had taken place. Surely, the people should be consulted. Very few of us have the technical knowledge to fully understand just what is going on. Why not have many such hearings, such as the one we are engaged in now, going on before any commitment is made? It is the general public, after all, whose money in the form of taxes and high costs pay for it.

Last summer the residents of Madoc and surrounding territories were up in arms because it had been proposed to use some areas in that locality as a dumping site for plutonium wastes. The same story is being repeated in many places in other countries. People are afraid, not only for themselves, but for coming generations. No definite answers have ever been forthcoming in my hearing as to whether the danger from these wastes, when they are buried, will ever be or ever can be eliminated for all time.

Surely, if there is the slightest doubt of the effect of these contaminants on the people, the government should decide it will take steps to see that it must not happen. We are most fortunate that we have lived in Canada, to have the

privilege of living in such a beautiful country. It is just as God has given us. We should act to prevent its despoilage.

There are many areas of non-agricultural land that could serve as building sites for these plants if it is found necessary to have them at all. Why spoil our shorelines and the natural beauty and habitat of our wildlife, break up our small communities and, in general, change our whole way of life?

Until we are absolutely sure that there are no other alternatives, why not take the time to fully examine the nature and consequences of these new proposals and then, if it is found that that is the best way for all of the people, then and only then, these important decisions should be made. What a contradiction we have here with the government spending large sums of money to clean up the lakes, while all around the lakeshore, nuclear plants, lumber mills, et cetera are discharging thousands of gallons of their wastes into them every hour of every day. And then being told to cut back on the use of electricity, when it actually works out that the more one uses the less it costs.

Having heard so much on the subject of nuclear wastes, energy shortages, et cetera through

the press, radio and TV, I am a bit confused as to what is the important factor or subject here. Things are happening too often and too fast and there are too many contradictions. I hope, Mr. Chairman, most sincerely that the issues that have been presented here will be dealt with in a manner that will be reassuring to many of us who have just lost a bit of faith in the haste and dispatch of their arranging.

I happen to be a member of the Women's Institute of Ontario which is a worldwide organization, and there are 30,000 members, women members in Canada. In April they had their semi-annual conference in Toronto and certain resolutions were put forward and, please, let me read these and then I am all finished. I will start at the beginning of the resolutions. Thirteen resolutions were researched by the Resolutions Committee and presented by the Convener to the meeting. Three emergency resolutions were discussed and two had already been handled. The remaining one was to be sent to Hastings North and was sustained. I don't know how far these resolutions got, but you will know that there is good in the minds of these people:

> "Whereas since there is a concentrated effort to develop nuclear energy, it is possible that future generations may

"be threatened and, whereas, the low level waste must be safely stored for hundreds of years, while the high level waste must be safely stored for many thousands of years, and whereas successive demands for energy at present are being met by concentrating on developments of energy from nuclear sources, and are neglecting the development of alternate sources, such as renewable resources, and the conservation of energy, and whereas the long terms genetic effects of increased radiation are not fully understood and may prove detrimental to future generations, therefore, be it resolved that the Federated Women's Institutes of Ontario request the governments of Ontario and Canada to initiate an educational program to acquaint the people with the hazards and benefits of nuclear energy development and waste disposal."

THE CHAIRMAN: Thank you very much, Mrs. Fletcher. We will get in the transcript that

resolution. Do you have a copy here?

MRS. FLETCHER: I have it in my book here. Who should I give it to?

THE CHAIRMAN: Mr. Timmermans.

Would you like to answer some questions?

MRS. FLETCHER: I would be happy to but I don't think I know enough to answer.

THE CHAIRMAN: I have a feeling you will.

MR. CHENG: Just a simple question. You mentioned that you live in Newtonville because you like the setting of it.

MRS. FLETCHER: Yes, I do.

MR. CHENG: And if I follow you correctly, you object to the project because of the waste aspect, right? Now, I just wonder if there is no waste associated with the project, would you object to it, or, in other words, what I am saying is the social impact of the project, more people passing by or living near you, how do you relate that aspect of the project?

MRS. FLETCHER: I am sorry, sir, you might have to repeat a bit of that. I just didn't catch every word.

MR. CHENG: You said you objected

to the project because of the waste aspect, the nuclear waste?

MRS. FLETCHER: Yes.

MR. CHENG: Now, if the industry has no waste associated with it, that means there is no waste, no waste discharged. It just has the social impact which is more people moving into the area, more traffic and so on and so forth. Would you be objecting to that?

MRS. FLETCHER: I just feel that it is a big, big pity that all these industries are built around our lakeshore, whether it is a clean industry or not, I object to it. I think all we have to do is read the paper and if we can believe what we read, we know that we are the breadbasket. We are the breadbasket of the world. We are the breadbasket of Canada. If these lands that grow these good things for our consumers are used in other ways, then it is going to be detrimental to the people. I would like to see no industry at all around Lake Ontario and let's enjoy your beautiful lakes and woods and scenery. Have I answered you correctly?

MR. CHENG: Yes, I think so.

MRS. FLETCHER: I'm sorry, I just didn't catch every word.

THE CHAIRMAN: Any other questions?

Thank you very much. We really appreciate it.

MRS. FLETCHER: Thank you for giving me the chance.

THE CHAIRMAN: Our next speaker is Mr. Paul Miller.

SUBMISSION BY MR. PAUL MILLER:

My name is Paul Miller and I am a resident of the Village of Bewdley. Before I start, I would like to apologize to Mr. Humphrey. I didn't mean to call him a liar. I meant the statement was a lie and not yourself, sir.

Now, on my brief -- I am sorry I worked on this and I just got it back tonight. By the time I finished everything -- there are probably quite a few spelling errors and mistakes. I never had a chance to edit it. So, if you will bear with me I will try to read it. There are some excerpts which I have stapled onto the back of the brief for presentation, but I won't bother reading them.

In view of our ever increasing population and diminishing resources of oil and gas, and the ever increasing danger and the cost of mining, and the massive amount of pollution in the environment by coal in both burning and storage, in order to maintain our present standard of living, let along improve it, we require a safer, efficient

and cheaper fuel. We have nuclear energy. Radium is the key ingredient and whether you believe it or not our oil and gas supplies are not going to be available much longer.

THE CHAIRMAN: Excuse me, Mr. Miller, but could you pull the microphone closer to you?

MR. MILLER: Yes. Last winter in the U.S. 300 people froze to death and millions were laid off. The cost to the economy was in the billions.

In this province between 18 and 22 per cent of this province's energy is produced by nuclear power. The cost of hydro is so expensive in the Maritimes that some people's energy bills are higher than their paycheque.

Through history, man has been divided on what course to follow. We all now how disruptive fire can be uncontrolled. We wouldn't be here today if one of our forefathers hadn't had the ability to put it to use.

More than a century ago, a group was formed called the Cassanders. Their total aim was to stop the building of railroads as they believed railroads would cause death and destruction. You remember the big demonstrations against the Pickering generating station. We were told if we weren't blown to bits, we would be dead or sterile or our children

mutated. The plant has been in operation for 15 years and nobody has been blown to bits, nobody has been poisoned. To get to the point, as far as I can discover, there have been no mutants born there either. As far as I know, there has been no mutants born in Port Hope. The plant that is under discussion to be built in Port Granby has been here in Port Hope operating for over 35 years.

Just over 65 years ago, Orville and Wilbur Wright flew a heavier than air machine a little over 900 feet. Three years ago man walked on the moon. Nuclear energy played a major role in this endeavour.

Very few people are willing to give up their present standard of living. Without nuclear energy, we have no choice. For the past 28 years I have lived and raised a family within ten miles of the existing refinery. We need nuclear power in Ontario now. We will need it much more in the future. We need this refinery in this area. We need the jobs supplied right now. We need the jobs Eldorado can supply in the future. We cannot afford to have Eldorado move out of this area any more than we can afford to see the Pickering generating station shut down and leave three million in Southern Ontario in the dark. The generating station, as I said before,

has been running accident-free for 15 years.

Now, for some hard truths. Agreed that Eldorado is not one of the cleanest plants in this area. There have been a few changes for the better in the past few years. One of the best proposals in this new project will be thoroughly cleaning out the old dump in Port Granby. Between enlightened management and concerned citizens, it will keep changing for the better.

I believe that nuclear power is our future. This refinery must be built. One of the main causes of concern is the waste from this type of refinery. There is now at least one refinery or reprocessing plant in existence and in operation for nuclear waste in the U.S. There would be a few more if it wasn't for the so-called environmentalists.

I have a diagram of the reprocessing plant in here as an excerpt from a book called "Health Hazards of Not Going Nuclear". It is included in the brief.

The second submission is burial, preferably in salt pits or encased in lead. Another option is a method developed by British scientists of sealing wastes into highly durable glass containers, which are fireproof, waterproof, and earthproof. This was brought up at the American Chemicals Conference in

April of 1976.

Our fear of leakage into the lake should be on a par with crossing a well-used highway. There is more danger in the kitchen or radioactive waste in a natural state where man hasn't tampered with nature than there ever will be in a nuclear refinery.

Explosion in nuclear plants are impossible, not improbable, and that is a direct quote again from the book "Health Hazards of Not Going Nuclear".

The type of material used in power plants has as much chance of causing a chain reaction as a wad of chewing gum. Even so, more people are killed on U.S. highways than were killed in Hiroshima and Nagasaki by a direct bomb blast.

THE CHAIRMAN: Excuse me, please. Could we pay attention to the speaker?

MR. MILLER: Nuclear power stations are safer and more economical than coal. More on coal later.

General radiation. Everytime you are X-rayed you receive more radiation, 5,000 times as much than if you live next door to a nuclear reactor for a year. Watching coloured TV, the average viewer is bombarded a hundred times more than someone living next door to a nuclear reactor. That is coloured TV.

Nuclear power in relation to coal, one million megawatts. Mining, coal, 189 fatal accidents a year. Uranium 2. Coal per million megawatts - 1545 non-fatal accidents. Uranium - 157. Transportation - 100 deaths per year in the transportation of coal from the mine to the plant. Uranium transportation mine to refinery, refinery to power plant - 1 death recorded to date. That was in 1974. Coal per million megawatts, electrical energy consumed. Occupational disease - 1,000 deaths from black lung. Uranium - 20 deaths from Cancer.

I should explain I haven't got this part in my brief, but the amount of coal mining compared to uranium mining is quite a higher percentage but, as these later figures prove, it doesn't take that much radium to run a plant compared to what it does with coal.

Production for a 1,000 megawatt plant for one year, coal - 30,000 wheel carts. Uranium - 6 truckloads. This is from a book called "Energy, Ecology and the Environment". Each percentage point of nuclear power points that we take away from coal saves 20 lives a year from black lung alone. Diseases of this sort makes some forms of cancers look very inviting. The 4,300 people who have died -- now, I don't know if these figures are

U.S. or North American figures, I am sorry -- in accidents and transportation in the production of coal not counting black lung, is a small percentage compared with a far greater number who have died as the direct result of air pollution of coal.

Waste, coal - one person's annual share of the output of coal-fired plants in the U.S. is 320 pounds of waste of which only about 90 per cent is in the ash pile. The rest which includes gaseous poisons spewed into the atmosphere. It is these discharges in the air which are more dangerous than the fires at the coal-fired plant.

Uranium -- there is a part that should have been here that wasn't included. I'm sorry that I can't quote the figures, because I don't have my main manuscript. But the mean number of Americans killed each year by ingesting uranium, from its natural sources, and this is just natural sources, that we haven't touched, is 12 per year. That is environmental hazards and radioactive waste disposal, Physics Today, page 915, January 1974.

The reason that coal has been discussed in this brief is that this is the only present source of power that we have in large enough quantities to consider it an alternative. The point is not to argue how dangerous coal is, but to argue

about how safe nuclear power is.

The American Nuclear Society endorsed nuclear energy after 21 years of investigation. This was in April of 1975 and this was the safest form of power generation. So did 18,000 members of the Power Engineering Society and so did 170,000 members of the Institute of Electrical and Electronic Engineers and so did 69,000 members of the Society of Professional Engineers, and so did 39,000 members of the American Institute of Chemical Engineers. 25,000 scientists and engineers working in the nuclear power field signed a petition for more nuclear energy in 1975. This is in the United States, by the way. The signees had totalled 200,000 years of electrical power generation. The facts show non-nuclear methods of power generation to be dangerous to health and lives.

Now, the expected annual fatalities in 15 million people living within a 25-mile radius of the U.S. reactor, this is a nuclear reactor -- accidents, automobile - 4200. This is yearly. Accidents - Niagara Falls, 1500. Fire, 560. Electrocution - 90. Lightening - 8. Reactor accidents - 2. The reactor caused probability is one in 20,000 reactor years. If it does happen it will in all probability cause no deaths. The Health

Hazards of Not Going Nuclear, 1977.

It is estimated that Mother Nature keeps 30 trillion cancer doses of radioactivity in random in the United States alone. Fear in general is caused by the lack of public knowledge of atomic energy. We all know that used in a barbaric way it could eliminate civilization totally. But used and harnessed properly and kept in a monitored and controlled area with maximum supervision, nuclear energy can be the safest and cheapest method yet working for man. More on safety and the cleanliness of this fuel should be taught.

Another reason that arouses strong opposition to nuclear power is the political opportunism. It creates fear in certain sections of our population. Knocking nuclear power is very popular these days, by scaring people with half-truths which are near fiction. An unknown can become a well-known politician overnight with this kind of publicity.

Here again schools should have the material available to explain to the children this type of technology that nuclear power can make available to their generation. They must be taught by teachers, not only the negative side, but the positive side about the important aspects of this

civilization. When they mature, they will be able to discuss these subjects sanely and without panic. Their knowledge will stop them from being stampeded.

Profit and greed. There are some people, very few, who sold properties to these refineries and power plants at very good prices who turn around and reinvest in property as close as possible to the first and then they form groups and organizations to stop the building of these types of plants with the idea that the companies involved will give them even better prices to get them out of the area. This has been done and will be done again and may very well be a part of this kind of process. This kind of profiteering everyone can do without.

Another group of people, those who really enjoy the atmosphere in which they live and don't want to change, I really sympathize with them. I love the rural country and hope to keep things the way they are.

Now, I live in the village. When people move into an area, they don't want to drive 75 miles to work each day and it is only a matter of time before -- well, we will have the same population or greater population in 1985 as we had in 1850 when everybody was gainfully employed here. There was even more industry here then than there is

today.

Alterior motives. There are some groups of individuals that would like to see this country dependent on foreign powers. They agitate for man's discontent. These people will stop progress by any means. They use our democratic system to disrupt and destroy our present way of life. They have stopped everything. They do not use the means at their disposal for constructive criticism but to stop progress. The funny part of this is that it is the hard working citizen who pays through tax money to put him out of work. I can't believe the same people that tried to stop atmospheric atomich explosions, that tried to stop the killing of baby seals and tried to stop the slaughter and partially succeeded with the great whales, opposing that they want to stop this refinery, but also Darlington Nuclear Power as well. These people are defeating their own purpose. This refinery will produce fuel for nuclear reactors that in turn will produce power to industries to produce synthetics and can make the slaughter of our wildlife meaningless. It seems today any localized man can become a so-called reform politician and speak against nuclear power. But the nuclear physicists and engineers have a right to answer. In most cases they are too busy

working ensuring a bright future for those who follow us to take time to answer a lot of political propaganda. The anti-nuclear bias is so strong that in many cases there is censorship, not censorship of the press, but censorship by the press. I have some figures -- we were talking about this earlier. Professor Andrews, if he is still here, mentioned these figures about the MilliRems of activity and he said they had been documented in the United States. Well, I have some figures here, various figures from all over that I just picked out from this book, "The Health Hazards of Not Going Nuclear" and these are various locations all around continental United States.

In New York City there is a mean dosage of 93 MilliRems a year. That is just in that site. These figures run from 107 to 157 MilliRems per year within various locations of a 20-mile radius of the city. A nuclear power plant has .01 MilliRems, and these are the United States atomic energy figures, again, per year, per each plant. This is 0.01 MilliRems or one-one hundredth of a Rem.

Colorado has the highest count in the U.S. and there are no nuclear facilities or uranium mining in that state.

The International Commission of Radiological Protection set up 500 MilliRems, that is the same as we have set in this country, as the maximum individual annual dose that an individual should receive. The figure is conservative and on the safe side as is the case with all such standards. Canadian figures are the same. The dosage limit in Canada is described by the Atomic Energy Control Board. Separate limits apply to the public and to occupational workers. The members of the public are limited to a total of 500 MilliRems in a year. This is exclusive of medical radiation exposure. The limits apply to a whole body dosage, or to critical organs such as blood forming arteries and the eyes. For other organs the dose limit is higher, e.g., 1500 MilliRems a year for the thyroid of a child.

Yet, a worker is allowed to work in some of these plants up to 20,000 MilliRems a year. These limits agree with the recommendation of the International Commission on Radiological Protection, a body of experts supported by groups such as the United Nations, the World Health Organization and the International Labour Organization.

There are areas in India and Brazil where people are exposed to three times the international permissible standard. Studies of these

populations reveal no unusual effects.

One single X-ray equals 50 MilliRems. This again is in a certain part of your body. It goes up and down depending on the site.

A jet flight coast to coast is good for 5 MilliRems, but watching coloured TV is 1 MilliRem a year or about a hundred times more than living next door to a nuclear plant.

All these doses together are smaller than what the average U.S. citizen receives from other natural sources, 130 MilliRems per year. Most of this comes from cosmic rays from the ground and building material, cosmic rays, gamma rays reaching us from outer space. The atmosphere acts as a partial shield against them. At high altitudes such as Wyoming, Colorado, British Columbia, that is the Rocky coastal range in British Columbia, is much stronger than at sea level. Cosmic ray components deliver a mean annual dose of about 35 MilliRems per year. These rates roughly double for every mile above sea level.

THE CHAIRMAN: Excuse me, Mr. Miller, two minutes.

MR. MILLER: Last week the Honourable Jack Horner, Minister of Trade and Commerce, announced that anti-energy groups have recently stopped the

building of coal-burning generating power stations in Alberta. This site is within 50 miles of the richest coal deposit in Alberta.

I will not comment on the subject further except to say, one, we are moving backward with each forward step. What type of energy are we supposed to use? Cut down our forests and use wood? Not only in 25 years will we have to cut down 95 per cent of our forests, but we will pollute our entire environment for the next few centuries. What will be left will be a sickly, disease-ridden society.

Jobs and employment. Construction of this refinery will employ a maximum of 400 workers, that is all trades. These are construction. Secondary manufacturing materials will employ approximately 3,000 from about November to May of 1980. For every construction worker in the field, there are usually about 3,000 in the service and manufacturing industries. The plant itself will employ up to 150 personnel. With 8500 people unemployed in Peterborough, and 4,000 out of work in Northumberland County, this is not any type of project to turn down.

The Australian Prime Minister, the Honourable Malcolm Fraser has just announced his decision to export uranium. Australian deposits

account for 20 per cent of the non-communist world supply or 14 per cent of the total world supply. Within three years they estimate they will make a million dollars annual net income. Toronto Daily Star, September 30th, 1977. Canada has approximately 33 per cent of the non-communist world, the world's total.

I don't think I'm going to have enough time --- there is no way I have enough time.

THE CHAIRMAN: I agree, but I think you have made your point.

MR. MILLER: I have a few other facts. I would like to get one part in, if you would.

THE CHAIRMAN: One minute, please.

MR. MILLER: Thank you. Farming is turning more and more to depend on hydro in the efficient production of vegetables, grains and meat from dairy cattle. They too are concerned about the ever-rising cost of hydro. Farmers use arsenic. It's half life is infinity, and that is a pollutant. Without our present nuclear facilities we would have to import hydro into this province. The costs would be far greater than we are paying today. At present, we are exporting energy to Quebec, New York and Michigan.

I believe in facing the following

facts. A form of conservation. A police state control. Dispersal of our centres of population, for example, Toronto, Hamilton, Ottawa and Montreal. A total ban on immigration. Totally enforced birth control. One or two children per family. Mass unemployment, even more than we have now. Stopping totally any type of energy resources export, which in turn would endanger our relations with other nations that we trade with. Solar wind and off-shore facilities such as Gaspe, Bay of Fundy, and the Georgian Straits tidal control programs are available. We would not have the technology, or the money, or the population which would require them. A standard of living far from the level we enjoy today, close to the communes of roving gypsies moving across our country by horse and wagon.

By the year 2000, this area's population is supposed to be at least double and without nuclear energy by the year 2000, we cannot support half the present population.

I will leave it there, sir, that is my point I wanted to make.

THE CHAIRMAN: Thank you. Would you like to stay and answer some questions?

MR. MILLER: Right, sorry.

MR. LANG: Mr. Miller, I would like to

see if I can follow your argument. Most of your brief I thought was an argument in favour of nuclear power.

MR. MILLER: Yes, sir. It is based on an overwhelming need for energy.

MR. LANG: And this particular refinery doesn't contribute anything to the energy needs of this area. I thought you were arguing the need for the refinery.

MR. MILLER: Yes, I am, sir.

MR. LANG: But on the basis of the need for jobs in this area?

MR. MILLER: I was, sir.

MR. LANG: Is there any connection between the need for this refinery and the need for nuclear power in this country?

MR. MILLER: I think there is. I think there is a great deal. We are using right now this CANDU reactor type of fuel. The type of fuel this plant is supplying mostly goes, I guess, to the States or France. I think within the next few years, it is only going to take -- well, Dr. Andrews is a chemist and he would know more about it than I do. I don't think it would cost that much to modify the plant to produce fuel to meet Canadian needs. I think in a few years time we are going to be doing that.

MR. LANG: Perhaps someone from

Eldorado would like to comment on the prospect of that. How easy is that to do.

MR. GRANT: I think we have already dealt with that as far as the panel is concerned. Whether or not we are going to do so or are likely to do so, we are not in a position to inform you. It is a very costly business to construct an enrichment plant. It is in the order of billions of dollars.

MR. LANG: Your argument, as you see it, there will be a need for the product of this refinery within its lifetime and that would contribute something to the energy needs of Canada?

MR. MILLER: I really do, sir.

MR. LANG: How do you feel about the hazards of the disposal of the waste?

MR. MILLER: I think I covered part of that in my brief. I believe there are mores wastes, control wastes than we have been using. I think we are very lax and far behind in the control of waste.

MR. LANG: You feel that the waste disposal process that has gone on so far on this site, the existing refinery, has been adequate and safe?

MR. MILLER: No way, sir.

MR. LANG: And it could be?

MR. MILLER: But I think it could be. I surely do. Like I say, I have said in my brief that I am concerned. I am a concerned citizen. I don't want my kids getting any radioactive waste. This is what I am saying. Now people are concerned. People have sat there for 35 years and not said boo. One or two people have. All of a sudden, bang. It is a little bit late. We should have been doing this 35 years ago.

But this is going to be a good thing. Eldorado, I think, in the future will be a lot better name than it has in the past. It is going to have to.

DR. BIRD: Mr. Miller, would you feel as happy or happier if the decision were made to locate the plant somewhere else in Canada rather than at Port Granby?

MR. MILLER: No, I don't think I would, sir. As I stated in my brief, this area needs all the employment we can get. Not at the sake of the safety of the territory in the area, but we need good employable jobs and I think Eldorado can provide them. I think Eldorado is sure there is not going to be a repeat of the performance of the dump deal in the last 35 years.

DR. BIRD: Supposing that the decision were made to locate the plant elsewhere. It

would at least then continue to provide the product, UF6, which you claim is so urgently needed elsewhere or even here, but in its place perhaps that whole ground, that whole territory we are talking about, that plot of land might be partitioned and converted to some other industrial use in which there was the possibility of employing two or three or four times as many people that Eldorado was planning. Would that please you even more?

MR. MILLER: No, I don't think it would, not unless there was a thorough clean-up and I believe it is Eldorado's responsibility to clean up before anything is done with it, leased or anything else. I don't think the area is job hungry enough to want people to suffer with radiation because because of jobs. But I think we need jobs and I can't stress that any more than I have done already in my brief. Plus we have got to have something to use as fuel in the future. I believe the panel and the people here haven't taken enough -- I really think this nuclear energy business should be taught to a lot more children, they should be taught more about this in school. There are too many scare tactics.

DR. BIRD: I heard you say the Eldorado refinery is the ideal plant to be put into Port Granby.

MR.MILLER: I didn't say it was the ideal plant, but I didn't say it was the worst plant.

DR. BIRD: You eliminated the other words.

MR.MILLER: The way you phrased your question, I eliminated, without building on a radioactive dump to employ more people. I believe that was your question.

DR. BIRD: But that particular dump doesn't occupy the entire area.

MR. MILLER: I realize that, sir.

DR. BIRD: I am trying to assess your concern about employment and your statement about the need for the product.

MR. MILLER: Right.

DR. BIRD: In relationship to other alternatives, and there are other alternatives. The plant could be located elsewhere?

MR. MILLER: That's right.

DR. BIRD: It is even possible, at least in theory, to imagine that the present dump is removed from this area entirely as well and as an alternative to all that, some other kind of industry, which is a non-radioactive industry, might come in which might offer even greater employment opportunities. I was trying to get your reaction to that scenario.

MR. MILLER: Theoretically that would be possible. That would be great.

DR. BIRD: Under those circumstances, you would be even happier still?

MR. MILLER: Of course. That makes sense. We are talking theoretically compared to something that is definitely being proposed now and here and not something we have ideally.

DR. BIRD: We have heard, Mr. Miller, quite a few of the people, local residents in the area expressing considerable concern about the construction of a uranium refinery in this area.

MR. MILLER: Right.

DR. BIRD: And their concerns are obviously different from yours.

MR. MILLER: Not really, sir. I don't think so. How can I phrase that? I am not knocking any of my neighbours, but I think I have worked in these types of plants and on nuclear programs and I don't think I have the fear like the one gentleman who got up and said he was scared stiff. I don't blame him. Some of the stuff I read in the newspapers scare me. What you read in the newspapers are sometimes facts and are a bit distorted and I don't think we have the statistics to prove this. Dr. Andrews knows more about this than I do, that

these things are dangerous. Every statistic we have taken proves that there are safer and easier ways to operate. This fuel has got to come from somewhere. What I am saying is that I can't see us exporting the fuel that we will need here at home, unless there is a very good profit to be made and we have enough for adequate domestic use.

DR. BIRD: I suppose what you are saying also is that the fact that we are going through the kind of process that we are experiencing here today, which has required Eldorado, or Eldorado has chosen to comply with, by having consultants carry out the kind of study they have, gives you personally satisfaction that many of the concerns have been looked into in great detail and that specific proposals are being made which measure up to your personal requirements or to your satisfaction.

MR. MILLER: I would like to make them better, but I am satisfied with what I have seen. There is nothing perfect, but I like what I have seen. It is going to be a great improvement.

DR. BIRD: You have spent some time looking at the Environmental Impact Statement and you are satisfied that a thorough examination has been made?

MR. MILLER: I spent approximately

since last Thursday, I spent approximately a 130 hours going over everything I could find on this project and on this environmental hearing.

THE CHAIRMAN: Questions from the floor?

PROFESSOR ANDREWS: If I don't get out of here soon and pick my wife up at her bridge club I will probably receive serious damage but, I stayed behind because there were one or two questions which needed clarification. Mr. Miller mentioned some figures and possibly he could tell me whether they are at variance with other figures.

MR. MILLER: I'm sorry, I missed the point. I didn't hear.

PROFESSOR ANDREWS: Mr. Miller, I was just leaving, I was just going to start the car, and somebody says Mr. Miller has some figures which are at variance with yours. Are you leaving? And I said well, okay, I will wait a half an hour and come back and see whether we can reconcile these figures, if Mr. Miller would kindly quote these figures that seem to be at variance with mine.

MR. MILLER: I don't think there was any variance at all. We are close on those 500 MilliRems per year for Canada and for the American Atomic Energy Board.

THE CHAIRMAN: I think different figures were used than you cited in relation to different studies. You would have to read all of his briefs and he would have to read all of yours to compare them. Perhaps we should arrange to exchange briefs.

MR. MILLER: I think if I could clarify, the figures I have given -- you were talking about the American study of MilliRems per square mile. The U.S. takes different readings of radiation in different parts. I have a few readings in my brief from different parts of the States. There was no variance in the figures. I just showed the difference in radioactivity from one state to another.

PROFESSOR ANDREWS: May I say, Mr. Chairman, this is a very valuable contribution because this illustrates that there are variances, locally, and what I would say is that the U.S. took the time to complete a survey of the whole of their territory and did ground surveys and they made a complete coverage. Now they know what they are. They do vary.

Mr. Miller put the question about the need for nuclear energy. I wonder whether I didn't hear the statement. Mr. Miller, have you heard the statement that if we have an energy collapse after the

year 2000 a hundred million people will die in North America and you will be able to build a causeway from Montreal to Vancouver ten feet wide and a foot deep made of human bones and that any steps which can be taken to alleviate that catastrophe must be seriously considered. Would you agree with that?

MR. MILLER: I read that statement in a book, I can't remember the name of the book, but I didn't use that statement because I was scared of the reaction I would get from this audience. But I do agree.

PROFESSOR ANDREWS: And we are all concerned, Mr. Chairman, with the energy problem and the possibility of energy collapse. This, Mr. Chairman, I suggest comes from one thing, that you can print money but you can't print energy. I think this is a very valid consideration and I appreciate the opportunity of questioning Mr. Miller on that matter. Thank you.

MR. VELDHUIS: I have so many questions, Mr. Chairman, but I will try to limit myself as much as I possibly can.

Mr. Miller has done an enormous amount of research, but first of all, these are simple questions. How far is Bewdley from Port Granby?

MR. MILLER: From Port Granby, 16-1/2

miles.

MR. VELDHUIS: And so you are not an immediate neighbour, although a resident of the area?

MR. MILLER: I am as close as a lot of people that have come from Toronto and a lot closer. This is part of my county.

MR. VELDHUIS: I am not from Toronto, so I don't know. You said safe and cleaner fuel is required. I couldn't agree with you more, but why is oil and gas so expensive?

MR. MILLER: I'm afraid I don't trust government figures either, especially when big cartels own massive reserves, but let's put it this way, I don't know why it is so expensive. I know what you are paying in another ten years and what they are paying in the Maritimes. I was down there this summer and the bills would astound you. That is why I say this is the only answer we have got. There are people walking around down there and I have seen energy bills that were $500 a month.

MR. PANTA: Just answer the question, sir.

THE CHAIRMAN: Let's just have the speakers.

MR. VELDHUIS: Is it possible, Mr. Miller, that part of the problem is that the energy,

oil and gas is a limited quantity? There is only so much of it? Is that not also true of uranium? Isn't that the same problem there and are we perhaps not going to be faced with the same problem in the not too far distant future?

MR. MILLER: Well, according to the Government Reserve Board, we have 20 per cent of the world's supply and that can last us approximately for 10,000 years.

MR. VELDHUIS: You stated, sir, something which I think is very basic, but you stated without nuclear energy we have no choice in our lifestyle. Now, a number of speakers have come forward and say that because of nuclear energy, if we decided to go that route, we would have no choice of lifestyle. You can see the opposites to that.

MR. MILLER: You are saying that with nuclear energy we will have no future? Is that what you are saying?

MR. VELDHUIS: No, no, far from it. What I said is if we decide to go all nuclear as is proposed by some people ---

THE CHAIRMAN: We are getting into a debate.

MR. VELDHUIS: All right. I will drop that question. I see where we are going, Mr.

Chairman.

THE CHAIRMAN: I am sure it will come back in Phase II.

MR. VELDHUIS: You said more leakage in natural sites occurs than from the refinery dump. Have you got that documented?

MR. MILLER: Pardon, sir?

MR. VELDHUIS: I believe in your statement you stated that there are natural occurring sites. I would agree with that. Uranium is quite heavy. You also stated, I believe, that those were higher than in a refinery dump?

MR. MILLER: My brief contains the statement that there is more leakage from natural causes than man-made dumps.

MR. VELDHUIS: Is that your own opinion or is that documented?

MR. MILLER: I have read that in two cases and it was disputed in a third. I believe the figures can be brought out. I haven't got the figures available, but I think they can be obtained. In Elliot Lake, 75 miles from where we started mining, there was a lake that hadn't been touched and the radioactivity of it was ten times higher than after the mining had already started. I think you will find quite a few other figures. There is a dosage rate

estimated under the Continental U.S. of 30 trillion tons or 30 trillion doses of uranium radiation.

MR. VELDHUIS: I accept your word on that. Earlier today, we had the United Steelworkers Union here and if I understood them correctly, they had quite a bit of concern about Elliot Lake. Do you share that view?

MR. MILLER: You are darn right. It is a helluva mess.

MR. VELDHUIS: Okay. I just want to check on this. This may be a typographical error. You said something about the melt down of the American station that occurs possibly one in 20,000.

MR. MILLER: Probabilities. There hasn't been one happen yet.

MR. VELDHUIS: One in 20,000 years?

MR. MILLER: One in 20,000.

MR. VELDHUIS: I believe from my information in the Rasmussen Report that it is one in 1,000 years.

MR. MILLER: I haven't seen the proper Rasmussen, shall we say, scientific data. Who is Mr. Rasmussen?

THE CHAIRMAN: We are getting carried away again.

MR. MILLER: This is research. Sir,

if you would give me a second ---

MR. VELDHUIS: I prefer that you leave that, Mr. Miller, otherwise the Chairman will rule us out of order, and rightly so. I don't want to debate.

I would like to clarify the statement that you made that the schools should make nuclear energy programs and the good reasons for going nuclear available to teachers. Sir, I would like to inform you and clarify to the panel that I happen to be a school teacher and I have been for the last 16 and some odd years.

MR. MILLER: Well, that is common knowledge, sir.

MR. VELDHUIS: I would like to point out that in the ten years I have been in this area, I have found one movie on alternative sources. There are several movies, four or five that I can remember off the top of my head on nuclear energy. There is a box or a kit, as it is called, so big and in that, it is completely full of information on nuclear energy. There is not one kit available on alternative sources. It is being taught and quite extensively.

MR. MILLER: I believe it is being taught. Both my daughters went through school and they come and tell us how bad it is and how it is

and how it is going to blow us off the face of the earth. This is the kind of teaching we are getting. I think it's about time people started to get into the classroom and train them. Where are all these nuclear explosions we have heard about? That is what I want to see. Show me the facts and I'll agree a hundred per cent. I believe the safeguards we take today are better than anything in the past.

THE CHAIRMAN: You have made your point.

MR. VELDHUIS: My last and final question, Mr. Chairman, is, Mr. Miller, you said that only nuclear physicists I believe, can debate the nuclear question.

MR. MILLER: That is pretty well what I said, sir.

MR. VELDHUIS: Right. Does that also mean that only politicians can vote?

--- Applause

THE CHAIRMAN: We have another speaker.

MR. DAVID FRASER: My name is David Fraser and I am a resident of Toronto. At the risk of sounding a bit ignorant -- I don't know very much about these proceedings. There are a few things that I would like clarified. Mr. Miller, if you ever

become a salesman, I am sure you could sell us on a nuclear power plant in the area because I don't think there would be anything wrong with getting one from what you said.

MR. MILLER: There surely isn't.

MR. FRASER: But what we are interested in here, I think, is should we or should we not have the nuclear waste site? That is what everyone is worried about. Well, dirty nuclear stations, well, fine. We don't have a dirty nuclear station here, but can you define dirt for me?

MR. MILLER: Pollution-wise.

MR. FRASER: Like, I'm sure ---

MR. MILLER: Do you know what pollution is?

THE CHAIRMAN: Gentlemen, please. Mr. Miller went through quite a long explanation about what he thought was dirty by going through coal and nuclear -- that is his opinion. Whether it is right or wrong is not what we are here for.

MR. FRASER: Well, one question I would like clarified is that one or two cows in a field would not mind a ton or two of coal soot or something beside them, but maybe an ounce or two of plutonium or whatever waste is going to be there, you might interpret it differently as dirt. So, if

you could define what is really dirt. What kind of dirt?

MR. MILLER: Have you ever seen Dofasco in Hamilton? You say you are from Toronto? Do you ever see any cows down there? Have you ever seen a coal town? Every family in a coal mining area, you have got one or two members dead. Have you ever seen one of those places? You haven't? Go and have a look at one of these places and then you will find out why I am for nuclear energy.

THE CHAIRMAN: Mr. Miller has made his point, do you have another question?

MR. FRASER: We would just like to put a stop to that particular situation from that being done. We are talking about a situation that might come down. Maybe we should think about it before we jump into it and maybe think about the consequences.

MR. MILLER: Do you realize that 18 to 22 per cent of Ontario hydro is produced by nuclear fuel? If we closed down the nuclear generating station today, you people in Toronto would drop like flies.

THE CHAIRMAN: We will have to cut this off. There are obviously differences of opinion. If you would like to register, Mr. Fraser, I am sure we could try to fit you in.

MR. FRASER: May I have one more question?

THE CHAIRMAN: I would like to cut this off. We have gone almost an hour with Mr. Miller.

MR. FRASER: But, I think power stations may be the answer to the energy crisis and maybe we could move them away from the people to Crown land.

THE CHAIRMAN: We have people with questions of clarification, I hope, because we also have two more intervenors.

MR. JOHN BENNETT: My name is John Bennett and I am with Greenpeace in Toronto. I would like to know, Mr. Miller, if you realize what the power potential surplus is in Ontario today, how much more power that Ontario hydro has within its generating capacity than it is actually using and how much it keeps as a surplus?

MR. MILLER: I wouldn't like to give the accurate figures. I have heard two different figures on that but I would say we have a surplus, that is why we export to Michigan and so on.

THE CHAIRMAN: Did you mention you were from Greenpeace? I presume you are going to bring this out in your own brief.

MR. BENNETT: I just wanted to clarify if Mr. Miller realized that Ontario Hydro is operating with a surplus of over 25 per cent today.

MR. MILLER: I heard 25 per cent.

MR. BENNETT: Therefore, his statement that if the nuclear generating stations were shut down today then we would all be freezing in the dark is totally erroneous.

MR. MILLER: Sir, may I answer that question?

THE CHAIRMAN: No, I think Mr. Miller has presented his point of view and accepts the fact that not everyone agrees with it. That has been rather obvious.

I would like to move on to the next speaker at this time. Thank you, Mr. Miller. The next speaker is Mr. Douglas Saunders from Greenpeace.

SUBMISSION BY MR. DOUGLAS SAUNDERS:

Mr. Chairman, and members of the panel. The Greenpeace Foundation is a non-profit international organization dedicated to finding direct solutions to the problems of the environment. It is funded entirely by contributions from individuals and groups who share our love for the earth and humanity.

I have a Masters Degree in Organic Chemistry. I have taken a leave of absence from my

Ph.D. program to work in our current nuclear program which is the campaign to make people aware of the dangers of nuclear power and the importance of energy conservation and the rapid development of alternative energy sources.

Greenpeace hopes to make the proliferation of nuclear materials a subject of widespread and informed public debate and not a decision by a few technocrats, bureaucrats and politicians. But it has become a debate among the people of Ontario.

In the eyes of many people, the history of the nuclear industry in Canada is one of actively campaigning to discourage public discussions and allay public fears using slick advertising containing half-truths and self-serving statements, thereby promoting an industry which is only viable because of governmental support, and whose burden of enormous social and environmental costs must be borne by the Canadian taxpayers including those who have had their own lives and livelihoods jeopardized by the industry.

Eldorado, particularly in the eyes of the people in this area, is the epitome of all that is wrong with an industry that callously bargins the quality of people's lives for a few

dollars. Time after time I have heard of situations in which a little thought, planning and sharing of ideas by Eldorado with the people in the area could have prevented incidents which damaged the relationship of the company with the local people. Eldorado has spent much time and money in public relations campaigns with respect to their operations, but has never voluntarily dealt with the real concerns of the people. Any improvements in their operations have come only as a result of intense media pressure damaging their public image. My impressions of the feelings of local people in the area is that Eldorado's only concern is public image.

Perhaps these people are wrong. Perhaps Eldorado does really care about the quality of life in this area. If so, then I cannot understand why local people with long-standing relationship with Eldorado remain highly skeptical and downright distrustful of the motives of the company and its officials. It is a very sad situation considering that Eldorado is a company belonging to the people of this country.

The history of Eldorado's operations in this area has now been carefully documented several times before this panel. The lack of careful surveillance of dumping in the Port Hope area. The

improper management of dump sites at the Monkey Mountain, at Welcome and Port Granby. The lack of response by Eldorado to suggestions by people such as Professor Douglas Andrews for improving maintenance of their waste management sites. The continuing disregard by Eldorado of the local people's concerns and right to be informed. The tragic effects of the Eldorado mismanagement on the lives of Port Hope citizens, both in terms of possible health effects and in the loss of property values. Belated attempts to rectify the situation at an estimated cost of $4 to $5 million. Modifications by Eldorado to the Port Granby dump site only after intense public pressure and threatened legal action by the local citizens.

It is only in response to such a continuous program of irresponsible actions that the local people share with Pathawson the sentiment:

> "Secrecy and misrepresentation on the part of government and industry officials has prevented the citizens from having the facts and understanding the events."

In the eyes of the people, then, it appears that Eldorado doesn't care and that the Atomic Energy Control Board acts as an apologist for

the industry. What is important, and I stress it is "in the eyes of the people". Whether in fact their perception is correct, this is their feeling based on experiences they have had with officials of both industry and government. These people are not irresponsible, irrational radicals. Rather I have found them to be committed, thoughtful people who care very deeply for the quality of life in their community. That they should entertain such strong misgivings about both the government and the industry is a problem with which both the AECB and Eldorado officials should be deeply concerned.

Events such as the failure to fully disclose to the people of Port Hope as completely as possible documentation of the "hotspots" in Port Hope, or the inability of Port Granby citizens to obtain from the AECB a report issued in July '76 dealing with the maintenance and run-off of the Port Granby and Welcome waste management sites, only add to the mistrust of local people.

This is the atmosphere within which these hearings are being held. I appreciate that your job requires a careful consideration of the proposal. The response that you are receiving from local people in the area comes from their feelings that maybe, just maybe this panel can "in the people's

eyes" justly deal with their concerns. Instead of discouraging their active response, you should encourage it. These people have every right, based on their treatment by government and the industry, to refuse to participate at all in such proceedings. Thatthey do so demonstrates their faith in and commitment to the democratic process, despite the lack of encouragement and financial assistance from their elected representatives.

Any suggestion that Eldorado's appearance at this hearing is the result of a similar commitment to the community is contemptible in the light of their past history.

In conclusion, the Foundation suggests that each of you consider in your evaluation that the past performance of the people in this area indicates their concern for their community and their children. On the other hand, Eldorado has indicated a desire only to maintain itself, its profits and its image. Thank you.

THE CHAIRMAN: Thank you, Mr. Saunders. Any questions by the panel?

MR. LANG: I gather that you are assuming that the performance of Eldorado will not improve in the future over what it has been in the past, the way you interpret it?

MR. SAUNDERS: As I said, in the eyes of the people of this area, they are very mistrustful about Eldorado's new plans.

MR. LANG: I am not asking you to speak on behalf of the people in this area, but to speak as a representative of your own Foundation.

MR. SAUNDERS: As a person who has listened to people in the area, yes, I feel that they certainly have not shown the kind of concern that they should for the quality of life in the area.

MR. LANG: So, your opinion that they will not be a better performer in the future is based on your interpretation of what the local people perceive, not your own studies?

MR. SAUNDERS: That's right.

MR. SHIKAZE: Does Greenpeace have a position with respect to nuclear power development?

MR. SAUNDERS: Yes, Greenpeace has a very strong position. We are against the proliferation of nuclear materials anyway, and that includes both the use of them in atomic weapons and also peaceful uses of nuclear materials as well.

MR. BIRD: If I could pursue that particular line, does that go so far as objecting to the use of radioactive materials for medical diagnostic purposes?

MR. SAUNDERS: I think until such time as there has been documented evidence or -- well, I think the controversy with respect to that kind of radiation is very much up in the air. I think more importantly the continued expansion of the nuclear industry raises questions that go far beyond that. The question of low level radiation is something which has, as I said, it is still up in the air. So, I am still open to that in the foundation.

DR. BIRD: Is it possible that you would find it useful and helpful to use radioactive materials for diagnostic purposes?

MR. SAUNDERS: It is certainly possible, yes.

DR. BIRD: What about the waste disposal site per se at Port Granby, at the dump? Let's supposing that, for whatever reason, Eldorado does not proceed with the new UF6 refinery. There is still in existence now a dump at Port Granby. What is your view with respect to that dump?

MR. SAUNDERS: I think there needs to be a proper surveillance in which both the company and AECB and the people of the area sit down and decide what they feel based on present techniques that we have available to us and what they feel is the best way to dispose of that material. But I emphasize

again it has to be with public participation in that area.

MR. GRANT: This is another one of those witnesses in respect of which I have some difficulty, but I don't propose to answer any of the allegations and half truths that were put forward against Eldorado. Most of them, if not all of them, don't deserve an answer. My only purpose is to remind the panel that because I don't question these allegations, does in no way mean that we admit them to be true, in whole or even in a miniscule part. I think they are ridiculous and extreme.

THE CHAIRMAN: Our last speakers are Joan Hayes and Elizabeth Leventhal.

MS. JOAN HAYES: I would like to apologize for being last. Sorry about that. We would still like to present our brief.

THE CHAIRMAN: Could you identify yourself before you start?

MS. HAYES: Yes, I am Joan Hayes and I live in Toronto. This is Elizabeth Leventhal and she lives in Toronto and we feel that we are essentially in the same community as the residents here this evening. I will present the first half of this report.

SUBMISSION BY JOAN HAYES:

This report is divided into two parts. The first is a critique of the decision of Eldorado Nuclear Ltd. (ENL) to build a uranium refinery in Port Granby. The second is an analysis of the environmental impact statement submitted by James F. MacLaren Ltd. and Hydrology Consultants Ltd. to the federal Environmental Assessment Panel (EAP).

Introduction: As at the commencement of these Hearings, September 27th, 1977, the status of the above mentioned project is as follows:

657 acres (1.03 sq. mi.) of land have been obtained at Port Granby, Ont.; a community which is 65 miles from Toronto and 8 miles from Port Hope. This site was chosen as the result of a one million dollar search condicted by the two consulting firms who have prepared the environmental impact statement.

A water processing plant has been constructed on the site (completion date July, 1977). It is unclear as to the intentions of ENL for this plant in terms of the proposed facility. The plant is currently processing effluents from the existing waste management facility on the site. It is intended to reduce the levels of arsenic, radium-226 and uranium entering Lake Ontario. The amounts of

these pollutants entering the Lake in 1975 and previous years were made public in a report to the Cabinet on Feb. 19, 1976.

This site is considered by the AECB as particularly desirable because of the opportunity it presents for management of the existing Port Granby disposal site.

An 1100 page environmental impact statement, specific to this site, has been commissioned and completed.

In light of these facts, it could be argued that this intervention before the EAP, and in fact all other interventions, are actions equivalent to closing the barn door after the horse is out.

The fact that public involvement occurs so late in the 'planning' process has been criticized with respect to nuclear power plant facilities. The Law Reform Commission, in its criticism of the Atomic Energy Control Board states,

> "AECB licensing procedures should ensure that meaningful public consideration of a planned reactor occurs at an early stage in the approval process. One method would be to include the requirement that applicant proponents of nuclear

"facilities must satisfy the agency that adequate public scrutiny has occurred before any site is approved to assist in this."

This advice should apply equally to a project of this magnitude. The 'communications program' undertaken by ENL from January 7, 1977 does not qualify, in our view, as an opportunity for meaningful public consideration. Mr. Ediger, President of ENL in 1975, stated in the annual report:

"The nuclear industry is as safe as any other human activity; its operations are conducted in a manner which can withstand public scruting at all times. In keeping with this principle it is the policy of Eldorado Nuclear Limited that all activities must meet high standards of safety and environmental cleanliness, regardless of the economic consequences."

He assures us that we may know or find out what is happening, but not that we can question it. This hearing is the first opportunity that has been presented to the Public to respond to the decision to build this refinery.

We would also question the reason why a federal assessment review panel has been chosen over the Ontario environmental review board, which could be expected to be more stringent due to public controversy over pollution in Ontario resulting from other nuclear mining and processing facilities.

Experience with uranium mining and processing facilities:

The environmental effects of mining and processing uranium have recently received widespread publicity. In a paper delivered at the Canadian Nuclear Association Conference in 1975, G.R. Yourt listed these problems in uranium mining operations:

> "a) emanation of radon gas and growth of its short-lived disintegration products (or radon daughters) into the mine atmosphere;
> b) radium-226 dissolved in small amounts in mine water and mill solutions;
> c) ingestion and inhalation of uranium concentrates by operators in the precipitation, filtering, drying and packing areas in the mill;
> d) thorium as a by-product;
> e) external radiation;

"f) tailings disposal;

g) smoking."

He subsequently discussed the Elliot Lake, Ontario, situation:

"When the provisions for storage and disposal of solid and liquid wastes from uramium milling was planned and designed, about the only criteria required by government agencies were durable embankment and neutralization of liquid effluents."

He then describes the environmental damage which was subsequently made public in the Globe and Mail in September 1976. In an article entitled, 'Ontario Government accused of indifference to 20 years of pollution in the Serpent River (Elliot Lake), the water was described as radioactive, unfit for human consumption, and devoid of fish.

In February, 1976, high levels of radon gas were detected in Uranium City, Saskatchewan, and landfill and rock were "carried away to the Eldorado Nuclear Ltd. disposal area."

Eldorado Nuclear Limited informed the public in its 1975 Annual Report that some of the contaminated materials from its original

Port Hope refinery were used as landfill in the town of Port Hope. This was reported to the public in September 1976 at the time when James F. MacLaren Ltd. of Toronto was awarded a contract of $1,500,000 by the Federal Government to clean up the radioactive waste. This figure does not include the cost of shipping the estimated contaminated 70,000 cubic yeards of waste to Chalk River, which is apparently the permanent dump site.

A school in Port Hope was constructed on radioactive landfill in 1955 and discovered to be contaminated in 1976. James F. MacLaren Ltd. was paid $156,000 to clean it up but by September, 1977 it was still unfit for normal operations.

Ontario has evidently been chosen as the burial ground for ENL's waste products. Chalk River has been the permanent dump site, and Port Granby is the anticipated successor.

<u>The Costs and Benefits of Uranium Hexaflouride Production and Sale</u>:

Uranium is an abundant natural resource in Canada. Our exonomy relies heavily on the development and export of natural resources, and the stated policy of the government is to develop them to the highest manufacturing level possible before export. This is an economically justifiable goal in that the value added to the economy increases with manufacturing activity.

Uranium is being treated just like any other resource in this respect, and much is made of this in the Environmental Impact Statement.

Uranium is however, radioactive. We are normally exposed to trace amounts of uranium ores which are widely dispersed in nature. Our miners are working deep granite deposits, where uranium concentrations are higher than those normally encountered. The mines are designed so that the smallest surface area possible is exposed at any time, and the mines are continually swept with air to remove the released radon gas. Further on-site processing of ore increases the concentration of uranium.

When the costs and benefits are analyzed to determine the viability of higher processing of uranium ore, estimates of all quantifiable costs are used. Typically in such an analysis, no account is taken of externalities such as the effects of the industry on the environment, land values, human health, and future generations. One reason the costs attributable to these factors is not included in the cost benefit analysis, is that no agreement can be reached as to the values to assign. In addition, the company will never be assigned these costs and therefore does not

fear them. As we have seen in the past, the government must pay for clean-up operations. Municipalities will suffer from reduced land values, etc.

One furhter cost should be included in the cost benefit analysis. This is the cost of ensuring that no penetration of the burial site by man-made or natural event occur in the next 11,600 years. Number of years is provided by James F. MacLaren Ltd. in the Environmental Impact Statement. If one generation is 25 years, then we are committing the next 464 generations to this task. Dr. Peter Dyne, a nuclear expert and currently Director of the Office of Energy R & D for Canada, referred to the policy implications in radioactive waste management:

> "Because of the long radioactive decay time of some of these materials, this is a demanding exercise. It is not just a technical matter; it has policy implications at all levels of government, provincial, federal and international. Moreover, the time scales involved also raise questions about the responsibilities we have towards the future

"generations who will be living on this planet."

In addition to that of the waste products, the project has two further environmental impacts. The first is caused by the day to day emissions.

The second is caused by the product. The production of UF_6 is the first stage in a sequence of nuclear fuel processing and reprocessing events. Once the UF_6 reaches the U.S. it will be enriched (its content of isotope 235 increased), then burned in the reactor, and finally sent for burial or for reprocessing. The ultimate destination for this UF_6 is then potentially even more devastating to the environment. If and when it is buried, it will be contaminated with plutonium, a man-made radioisotope with a half life of 24,000 years. If it is reprocessed, the insults to the environment will make those presented here trivial.

It must be noted that sale of the product to fuel the U.S. Light Water reactor, is the sole purpose of this facility. We do not use this fuel for our reactors. In fact, we believe our reactors are safer and cleaner, and we are trying to develop export markets for them.

What are the benefits expected from

this refinery? The benefit is the value added to the economy which is composed primarily of wages and profits attributable to this enterprise.

The employment during the construction phase is likely to be at a high level, however the operational work force is mentioned as being 150 people with an estimated annual payroll of $3 million. These wages,and the profits from the sale of UF_6 will accrue to Canada for from 15 to 30 years, or over .6 to 1.2 generations.

SUBMISSION BY ELIZABETH LEVENTHAL:

Analysis of the Environmental Impact Statement:

We would like to preface any remarks in this section by pointing out that the Environmental Impact Statement was available for public scrutiny from July 12, 1977. During this time, the Central Toronto Public Library was disrupted by a strike and the Robarts Library at the University of Toronto, had still not received the report by September 10.

However, even had the EIS been more readily available, for an 1100 page document, a two and a half month period before the hearings creates pressure on the public to prepare an authoritative critique. Not only has the public not been adequately informed but non-scientists are excluded from

participation because of a lack of understanding of the basic technology.

The first criticism of the Environmental Impact Statement concerns the effectiveness of the 'Management of Waste' program. The report projects conditions under which the site would be decommisioned in 15 to 30 years. "All equipment used in the refining circuits ..... would be decontaminated, if necessary. In the event that some pieces of equipment could not be completely decontaminated by methods existing at that time, they would be buried." The realism of these statements is questioned on the grounds that the process of decontamination is a problem that has not yet been solved, but rather one which is left to future generations with the assumption made that this could happen in 15 to 30 years.

We strongly object to a project that creates hazards and problems for which the technology has not yet been developed.

The burial system is described as built "to ensure containment. Given the need to contain the residues in a dry, safe place for perhaps thousands of years."

We question the confidence in burial as a safe alternative on two grounds. The first

is that the burial system has not been confirmed as safe since it is a new, untested, unproven technology; the second is that the short history of the management of nuclear wastes has been accompanied by unexpected problems. One example is the leakage of pollutants to the environment resulting in the present closing down and removal of the present site at Port Granby used for the disposal of wast from the Port Hope refinery. The reason for this move is to "reduce the impact of site drainage into Lake Ontario." This disposal site is now only seven years old and must be closed because of unforeseen levels of radium and arsenic seeping into Lake Ontario.

"Once stripped of all such (contaminated) materials, the original plant site could be returned to unrestricted use.

"The wast management site would remain an open area, and the only restrictions would be against permanent structures or habitation, removal of the soil cover, or disturbance of the deep bentonite blanket. The whole area would be attractively contoured and vegetated for use as a "green belt" area, and the public could have unrestricted access to the area for recrational use."

The intimation of unrestricted use of the plant site seems optimistic considering the

restrictions on the adjacent waste management area. We question how realistic it is to presume it is possible to have such a large undisturbed area for thousands of years in view of 2 facts:

1. The soil cover or the bentonite blanket could be disturbed by accident or sabotage, or because of technological deficiencies in the long term usage of bentonite eg. reactions to freezing (cracking) and thawing and interaction with the root systems of vegetation over thousands of years.

2. Mistakes have been made in the removal of soils - one resulted in radioactive landfill being used under a Port Hope school resulting in the closing of the school and uncorrectable damage due to accumulated radiation of radon gas over a twenty year period. The radon gas had not been detected earlier. Was it not monitored or did it escape from the surface only recently?

The solid waste producing the most dangerous pollutant is the raffinate containing radioactive radium 226. Residues from the raffinate total 1600 tons a year or 48,000 tons over a 30 year lifetime of the Port Granby refinery.

Regarding the risk of disturbance of the bentonite layer in the burial system the Environmental Impact Statement estimates the risk

of penetration by precipitation resulting in seeping into Lake Ontario: "it is conservatively estimated that the contaminants would not cover the 800 metres to Lake Ontario for at least 11,600 years." The report goes on to say that by that time the contaminants would be sufficiently diluted so as not to be dangerous and that only 0.66% of the original radium 226 would be left. The report does not state the reason why radium is dangerous or the extent of its presence in the case of the soild being disturbed before 11,600 years had elapsed. Since the lifetime of the plant is 15-30 years, it is highly likely that well before a long enough time had elapsed for the radioactive nuclei to decay (say 100-200 years, well before 11,600 years), an area of 657 acres consisting of a waste area beside a plant "returned to unrestricted use" may be required for habitation given the increase in pipulation on the north shore of Lake Ontario. If the soil were disturbed in this interval the amount of radon gas resulting from radium disintegration may be hazardous so close to a large urban area. The disintegration of radium to radon proceeds with a half life of 1602 years and is represented as follows:

Half the amount of uramium 235 will disintegrate in 10 to the 8th years. One of the products is radium

226. Half of that amount will disintegrate every 1602 years to produce radon 222 which has a half life of 3.82 days. While it is true that after 11,600 years the amount of radium left would be approximately 0.66% of that originally buried, if that amount of time does not elapse a hazardous amount may be present due to the exponential rate of decay. After 1602 years, 50% will remain, after 3204 years, 25% will still be left and after 4806 years, 12.5% will be present.

High levels of radon gas are thought to cause lung cancer by inhalation and to be synergistic with smoking. The possibility of synergism with urban pollutants and smog seems high although this problem has not been studied. The problem cannot be corrected and Eldorado Nuclear Ltd. "has conducted several anti-smoking campaigns in the Beaverlodge community, and intends to intensify this information program in the future." The Port Granby facilities will be well ventilated in order to avoid the potential concern of radon 222 in confined spaces. Does this mean that the gas will be given off as an air emission and is this not a hazardous air pollutant?

We urge that the decision to proceed with this refinery be reassessed in light of,

1) the lack of reliable methods to isolate the environment from radioactive wastes;

2) the current controversy on an international level as to the acceptability of the nclear solution to our energy needs.

In addition we recommed that in the planning of projects of this type in the future, the public review occur at the beginning of the planning process.

THE CHAIRMAN: Any questions by the panel? Any questions from the floor?

MR. CHENG: The second speaker mentioned closing down, the removal of the site at Port Granby. Perhaps you could clarify that.

MS. LEVENTHAL: I referred to the present disposal site at Port Granby used for the disposal of waste from the Port Hope refinery. That is being divered at the present time. It has been closed down at the present time. It has been described in the Environmental Impact Statement and moved to a new site.

MR. GRANT: I don't think that is entirely correct.

MS. LEVENTHAL: On the same location, to a different land area.

MR. GRANT: At the present time? Are we doing it now?

MS. LEVENTHAL: Yes.

MR. GRANT: Or is that our proposal?

MS. LEVENTHAL: No, it is being done now.

MR. GRANT: No it isn't.

THE CHAIRMAN: Part of our problem is to consider what to do with the waste there and whether or not a new waste management area should be established about 500 meters north from where it now is. Perhaps Mr. Cheng's question related to that.

MS. LEVENTHAL: It is necessary to move the site according to the study because there is seepage into Lake Ontario of certain contaminants.

MR. CHENG: My question was answered by Mr. Grant, what has happened. Thank you.

MR. GRANT: Perhaps it might be useful, Mr. Chairman, to end the evening in a slightly ligher vein. You know, at law school they always teach lawyers to be very careful not to ask a question unless you know the answer beforehand. But, I am going to break that rule and ask why two very attractive and articulate ladies have come all the way from Toronto to give us the benefit of your very careful work. Are you associated with some group here?

MS. LEVENTHAL: No, we are not. Both of us were in the maths, physics and chemistry course for our undergraduate education at the University of Toronto. So, we are scientists. We are concerned about the social responsibility of science. One of the courses I teach is chemistry in society.

MR. GRANT: Thank you. I'm impressed.

DR. DEROW: Do you think the Robards Library should have a copy of this? Distribution was made in the local area. The Robards Library have a policy of not buying expensive material.

Well, the advertisement announced the locations of where this report could be found. One of the ones was Robards Library. When I went there they said usually they get these things six months after Toronto Central Public Library and they didn't expect to get it for quite a while.

DR. DEROW: I didn't receive a copy of that ad.

MS. LEVENTHAL: It was in the newspaper.

DR. DEROW: I want to ask the first speaker, do you consider yourself in the community of Toronto as part of this community? Could you tell us what kind of impacts that the citizens of Toronto will be having due to this facility?

MS. HAYES: Well, I think unless we would be prepared to have this refinery sitting next door to us, then it is the responsibility of individuals to protest wherever it goes.

DR. DEROW: But you said you thought you were a citizen, part of this community.

MS. HAYES: Yes, this is the community that we live in. It is very hard to define contaminants in the environment, as you know. We have lead and mercury in the Arctic, et cetera. That is the general feeling I have.

THE CHAIRMAN: Any further questions? Thank you ladies and gentlemen. I think we can adjourn until 10:00 o'clock tomorrow morning.

--- Whereupon the hearing adjourned at 11:40 p.m.